



## CONTRIBUTIONS TOWARD A BRYOFLORA OF CALIFORNIA: I. A SPECIMEN-BASED CATALOGUE OF MOSSES

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### ABSTRACT

This catalogue documents 596 mosses for California with 111 taxa newly reported for the state. Thirty taxa previously reported for California have been excluded. The California moss flora is comprised of 163 genera in 49 families. A new combination, *Lescuraea pallida*, is proposed.

Key Words: California mosses, floristics, moss distribution, bryogeography.

It has been over 50 years since a catalogue of mosses was last published for California (Koch 1950a). This present catalogue is based on specimens with every entry supported by one or more herbarium collections that we have examined and cite in the present paper. It is not our intent to produce a range, habitat, or distribution analysis for each taxon based on herbarium records, nor to list all collections available for each entry, but rather to validate and document each species presence and geographic distribution in California. Mosses occur in all 58 counties of the state yet the number of taxa recorded per county varies markedly based on county size, elevational relief, diversity of habitats, climate, and the efforts by bryologists to document its bryoflora (Shevock 2003). Several mosses are known to occur in California from solitary occurrences or from only a handful of specimens. When possible we provide up to six representative collections per taxon. Where applicable, we have preferentially selected specimens obtained from public lands (Bureau of Land Management, National Forests, State Parks, U.S. Fish and Wildlife Service Refuges, State Forests, State Parks, State Fish and Game Ecological Preserves, County Parks, etc.). We do this because these are occurrences likely to remain extant through habitat protection or by conservation efforts within agency management mandates. For those mosses that are considered rare, threatened or sensitive by either the California Native Plant Society or by state and federal agencies, we have listed all occurrences known to us based on our review of specimens.

It has been a long-standing challenge to develop concise statements to accommodate where particular plants can be expected to occur in California. The state is highly complex both geologically and

physiographically. In addition California contains an unusual diversity of habitats, plant communities, and microenvironments for the establishment of moss populations. No previously published distribution system has been developed for California mosses. After reviewing several strategies to address species distribution patterns, we chose to follow the geographic system used by *The Jepson Manual* (Hickman 1993). This hierarchical system of geographic units is four-tiered and comprised of provinces, regions, subregions and districts. The provinces are broadly defined and each province is divided into regions. California has three provinces and ten regions within its boundary. Subregions and districts further define these units. However, based on the state of our understanding and knowledge of mosses in California, we have limited species distributions to the regional level of analysis within this paper. Of the ten geographic subdivisions of California (Hickman 1993), six represent the California Floristic Province, two lie within the Great Basin Floristic Province and two in the Desert Province (Fig. 1). Where a taxon is not restricted to a single geographic subdivision of California (Hickman 1993), we have selected specimens that display a broader geographic range reflecting the unusual diversity of climates and habitats in the state. Our priority selections for broad geographic subdivisions are 1) Sierra Nevada, 2) Klamath/Cascade Ranges, 3) Coast Ranges, 4) Transverse/Peninsular Ranges, and 5) Desert/Great Basin. Collectively, these regions outline the broad physiographic and biologic geography of California. Each moss in this catalogue is listed by region, and we document its presence by a voucher specimen. Clearly some regions are less frequently cited than others. In many cases, this is merely a reflection of collecting habits of bryologists where the senior author has concentrated collecting activities in the north-west portion of the state while the junior author has focused on mosses within the Sierra Nevada. None-

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FIG. 1. Geographic subdivisions of California. **California Floristic Province (CA-FP):** Regions: **CaR** = Cascade Range; **CW** = Central Western California; **GV** = Great Valley; **NW** = Northwestern California; **SN** = Sierra Nevada; **SW** = Southwestern California. **Great Basin Floristic Province (GB):** Regions: **MP** = Modoc Plateau; **SNE** = East of Sierra Nevada. **Desert Province (D):** Regions: **DMoj** = Mojave Desert; **DSon** = Sonoran Desert.



theless, a quick visualization of the distribution pattern will provide the reader with a good indication if a species is widespread in California or confined to only a few regions of the state.

The California moss catalogue (Appendix I) provides an updated list of taxa with two key elements: 1) references to mosses reported for California in the published literature, and 2) mosses documented by herbarium specimens as occurring in California that we believe are published here for the first time. In the literature field we reference the pertinent published sources (checklists, bryofloras, and monographs) for each taxon that has been attributed to California prior to this effort. We also have referenced the name used in each publication if it differs from the name preferred in our catalogue. Moss collections at CAS and UC were the primary source for this study, however, we also examined specimens at MO, NY, SBBG, SD and California State University herbaria, especially SFSU. The collections at LAM would have been especially interesting to study primarily for their coverage of southern California. Unfortunately the LAM collections were in storage and not readily available during the course of our herbarium review, however, many duplicates of Fay MacFadden collections were located at MO and UC. The senior author has made more than 35,000 collections in pursuit of developing a moss flora for the state of California. Norris collections cited in this paper reside at UC; and Shevock collections are at CAS. For specimens cited by other collectors, we list the herbaria where their specimens reside. Additions to the moss flora of California that have not been published previously are highlighted with an asterisk. Taxa erroneously reported for the state are placed in Appendix II. Appendix III includes taxa currently not known in California whose presence is documented and verified by voucher specimens generally within 50 miles of the state border. These taxa are listed in the catalogue with the hope that additional field work by bryologists and plant enthusiasts may document occurrences in California in the near future. Appendix IV provides a list of synonyms and excluded names.

Another feature of this catalogue is a literature reference for representative moss illustrations. Used in conjunction with keys to identify California mosses, illustrations are useful in confirming the identification of specimens. We have attempted to reference illustrations from journals and bryofloras that are likely to be in major university libraries and scientific institutions; however, some excellent illustrations are also located in infrequently encountered publications. We hope this feature of the catalogue will be of value for those seeking a good illustration for a particular species.

Nomenclature in bryology continues to undergo considerable modification and realignment as more taxa receive detailed study and monographic treatments. In this catalogue, we generally follow the

nomenclature presented in the checklist for North America prepared by Anderson et al. (1990) and Anderson (1990) along with Crosby et al. (2000). We have generally followed Zander (1993) for generic recognition in the Pottiaceae. We basically follow the family arrangement as presented by Buck and Goffinet (2000). In addition, other name changes and taxonomic inventions are also considered from recently published sources including treatments for the forthcoming bryophyte volumes for the Flora of North America Project (BNFA) along with our own views regarding the circumscription of bryological taxa. Bryological work continues to reassort familial and generic alignments. We respond to these newer treatments by slowly evaluating our acceptances and rejections. Such recent excellent works as Ignatov and Huttunen (2002) have made so many realignments that we find a need to delay advocacy until after this present paper. We have also chosen not to recognize varietal and subspecific ranks in this catalogue but instead list at the species level nearly all taxa that we deem worthy of recognition. In all cases, however, names used in older literature documenting the distribution of mosses in California are referenced to the nomenclature selected for this catalogue (see Appendix IV).

Students of California bryology require not only the distributional literature and illustrations but they also will require additional pertinent literature involving ecology and geography. Monographic and taxonomic literature will also be necessary to these students, and sometimes certain morphologic literature will allow understanding of features seen in mosses.

*Ecology literature.* Albert 1988; During 1979; Forman 1962; Gignac 2001; Glime and Vitt 1987; Hartman 1969; Janssens and Zander 1980; Jones 1970; Nash et al. 1977; Nichols 1910; Persson 1956; Schatz 1955; Shaw 1981b; Shaw and Owens 1995; Smith 1982; Wilkins 1977.

*Geography literature.* Austin 1877a, b, 1878; Barnes 1891; Bowers et al. 1974; Christy 1980; Christy and Harpel 1997; Christy et al. 1982; Crum 1972; Delgadillo 1996; Koch 1952, 1954a, 1956; McIntosh 1989, 1997; Norris 1997; Schofield 1969a, 1980, 1984, 1994a; Schofield and Crum 1972; Shaw and Snider 1995; Spence 1988b; Stark and Whittemore 2000; Steere 1969; Zander and Hoe 1979.

*Taxonomic literature.* Cao and Churchill 1995; Clarke and Duckett 1979; Crosby 1980; Giles 1990b; Greene and Harrington 1988, 1989; Iwatsuki 1981; Jamieson 1980; Koch 1949b; Robinson and Ignatov 1997; Sayre 1946; Shaw 1981c, d, f, 1985; Spence 1996; Taylor and Levitan 1980; Weber 1976; Zander 1978a.

*Monographic literature.* Anderson and Bryan 1958; Andrews 1913; Andrus 1983; Barkman 1963;

TABLE 1. SYNOPSIS OF THE MOSS GENERA AND FAMILIES OCCURRING IN CALIFORNIA.

<b>Amblystegiaceae</b>	<i>Atractylocarpus</i>
<i>Amblystegium</i>	<i>Campylopodiella</i>
<i>Hygroamblystegium</i>	<i>Campylopus</i>
<i>Leptodictyum</i>	<i>Cynodontium</i>
<b>Andreaeaceae</b>	<i>Dichodontium</i>
<i>Andreaea</i>	<i>Dicranella</i>
<b>Archidiaceae</b>	<i>Dicranum</i>
<i>Archidium</i>	<i>Kiaeria</i>
<b>Aulacomniaceae</b>	<i>Oncophorus</i>
<i>Aulacomnium</i>	<i>Orthodicranum</i>
<b>Bartramiaceae</b>	<b>Ditrichaceae</b>
<i>Anacolia</i>	<i>Ceratodon</i>
<i>Bartramia</i>	<i>Distichium</i>
<i>Conostomum</i>	<i>Ditrichum</i>
<i>Philonotis</i>	<i>Pleuridium</i>
<b>Brachytheciaceae</b>	<i>Trichodon</i>
<i>Bestia</i>	<b>Encalyptaceae</b>
<i>Brachythecium</i>	<i>Encalypta</i>
<i>Eurhynchium</i>	<b>Ephemeraceae</b>
<i>Homalothecium</i>	<i>Ephemerum</i>
<i>Isothecium</i>	<b>Fabroniaceae</b>
<i>Kindbergia</i>	<i>Fabronia</i>
<i>Platyhypnidium</i>	<b>Fissidentaceae</b>
<i>Pseudoscleropodium</i>	<i>Fissidens</i>
<i>Scleropodium</i>	<b>Fontinalaceae</b>
<i>Steerecleus</i>	<i>Dichelyma</i>
<i>Trachybryum</i>	<i>Fontinalis</i>
<b>Bruchiaceae</b>	<b>Funariaceae</b>
<i>Bruchia</i>	<i>Entosthodon</i>
<i>Trematodon</i>	<i>Funaria</i>
<b>Bryaceae</b>	<i>Physcomitrella</i>
<i>Anomobryum</i>	<i>Physomitrium</i>
<i>Bryum</i>	<i>Pyramidula</i>
<b>Buxbaumiaceae</b>	<b>Gigaspermaceae</b>
<i>Buxbaumia</i>	<i>Lorentziella</i>
<b>Campyliaceae</b>	<b>Grimmiaceae</b>
<i>Campylium</i>	<i>Coscinodon</i>
<i>Conardia</i>	<i>Grimmia</i>
<i>Drepanocladus</i>	<i>Jaffuelobryum</i>
<i>Hamatocaulis</i>	<i>Racomitrium</i>
<i>Hygrohypnum</i>	<i>Schistidium</i>
<i>Pseudo-calliargon</i>	<b>Hedwigiaceae</b>
<i>Sanionia</i>	<i>Hedwigia</i>
<i>Straminergon</i>	<i>Pseudobraunia</i>
<i>Warnstorfia</i>	<b>Helodiaceae</b>
<b>Cratoneuraceae</b>	<i>Helodium</i>
<i>Cratoneuron</i>	<i>Palustriella</i>
<b>Cryphaeaceae</b>	<b>Hookeriaceae</b>
<i>Dendroalsia</i>	<i>Hookeria</i>
<b>Disceiaceae</b>	<b>Hylocomiaceae</b>
<i>Discelium</i>	<i>Hylocomium</i>
<b>Dicranaceae</b>	<i>Rhytidiadelphus</i>
<i>Arctoa</i>	<i>Rhytidiopsis</i>
	<b>Hypnaceae</b>
	<i>Buckiella</i>
	<i>Calliargonella</i>

TABLE 1. CONTINUED.

<i>Dacryophyllum</i>	<i>Pogonatum</i>
<i>Herzogiella</i>	<i>Polytrichastrum</i>
<i>Homomallium</i>	<i>Polytrichum</i>
<i>Hypnum</i>	<b>Pottiaceae</b>
<i>Isopterygiopsis</i>	<i>Acaulon</i>
<i>Isopterygium</i>	<i>Aloina</i>
<i>Platydictya</i>	<i>Barbula</i>
<i>Pseudotaxiphyllum</i>	<i>Bryoerythrophyllum</i>
<i>Tripterocladium</i>	<i>Crossidium</i>
<i>Vesicularia</i>	<i>Crunia</i>
<b>Leptodontaceae</b>	<i>Didymodon</i>
<i>Alsia</i>	<i>Eucladium</i>
<b>Leskeaceae</b>	<i>Gymnostomum</i>
<i>Claopodium</i>	<i>Hennediella</i>
<i>Leptopterigynandrum</i>	<i>Hymenostylium</i>
<i>Lescuraea</i>	<i>Leptophascum</i>
<i>Leskea</i>	<i>Microbryum</i>
<i>Pseudoleskeella</i>	<i>Molendoa</i>
<b>Leucodontaceae</b>	<i>Oxystegius</i>
<i>Antitrichia</i>	<i>Phascum</i>
<i>Pterogonium</i>	<i>Pseudocrossidium</i>
<b>Meesiaceae</b>	<i>Scopelophila</i>
<i>Leptobryum</i>	<i>Stegonia</i>
<i>Meesia</i>	<i>Syntrichia</i>
<b>Mielichhoferiaceae</b>	<i>Timmia</i>
<i>Mielichhoferia</i>	<i>Tortella</i>
<i>Schizymenium</i>	<i>Tortula</i>
<b>Mniaceae</b>	<i>Trichostomum</i>
<i>Epipterygium</i>	<i>Triquetrella</i>
<i>Leucolepis</i>	<i>Weissia</i>
<i>Mnium</i>	<b>Pterigynandraceae</b>
<i>Plagiomnium</i>	<i>Heterocladium</i>
<i>Pohlia</i>	<i>Myurella</i>
<i>Rhizomnium</i>	<i>Pterigynandrum</i>
<i>Roellia</i>	<b>Ptychomitriaceae</b>
<b>Neckeraceae</b>	<i>Ptychomitrium</i>
<i>Bryolawtonia</i>	<b>Rhabdoweisiaceae</b>
<i>Metaneckera</i>	<i>Amphidium</i>
<i>Neckera</i>	<b>Scouleriaceae</b>
<i>Porotrichum</i>	<i>Scouleria</i>
<i>Thamnobryum</i>	<b>Seligeriaceae</b>
<b>Orthodontiaceae</b>	<i>Blindia</i>
<i>Orthodontium</i>	<i>Dicranoweisia</i>
<b>Orthotrichaceae</b>	<b>Sematophyllaceae</b>
<i>Orthotrichum</i>	<i>Sematophyllum</i>
<i>Ulota</i>	<b>Sphagnaceae</b>
<i>Zygodon</i>	<i>Sphagnum</i>
<b>Plagiotheciaceae</b>	<b>Tetraphidaceae</b>
<i>Plagiothecium</i>	<i>Tetraphis</i>
<b>Polytrichaceae</b>	<b>Timmia</b>
<i>Atrichum</i>	<i>Timmia</i>
<i>Meiotrichum</i>	

TABLE 2. THE TEN LARGEST MOSS FAMILIES IN CALIFORNIA.

Pottiaceae	93
Grimmiaceae	61
Brachytheciaceae	50
Bryaceae	42
Mniaceae	37
Orthotrichaceae	35
Dicranaceae	32
Campyliaceae	25
Sphagnaceae	23
Hypnaceae	18

Bartlett and Vitt 1986; Bartram 1924; Best 1897, 1900; Brassard 1969, 1984; Bremer 1980a, b, 1981; Brotherus 1908; Bryan 1997; Corley 1978; Crum 1965a, b, 1997; Crundwell 1957; Crundwell and Nyholm 1964; Delgadillo 1973; Eckel 1997b; Eckel et al. 1997; Flowers 1952; Frahm and Isoviita 1988; Frahm and Vitt 1978; Frye 1917a, b, 1918a, b; Giles 1990a; Gradstein and Sipman 1978; Grevén 1994, 1995, 1999a, b, 2003; Hedenäs 1993b, 1996a, b, 1997a, b, c; Ireland 1969a, b, 1985, 1986; Iwatsuki 1981; Koch 1954b; Koponen 1968a, b; Lawrey 1948; Lewinsky 1993; Lewinsky and Hedenäs 1998; Lawton 1972; Ochyra 1982, 1998b; Piippo 1983; Pursell 1994; Robinson 1970, 1976; Saito 1972, 1973; Sayre 1952; Spence 1987; Stark 1996; Steere 1939, 1940a, b, c, d; Stoneburner 1985; Vitt 1972; Williams 1919; Zales 1973; Zander 1981b, 1989, 1998.

*Morphologic literature.* Allen 1983; Crum 1971, 2001; Field 1963; Goffinet et al. 1999; Griffin 1998; Hill 1902; Ireland 1971; Mueller 1973; Shaw and Crum 1984; Zander 1979b, 1980.

A synopsis of the moss genera and families for California is provided in Table 1. The 10 largest moss families in California include over two-thirds of the species documented for the state (Table 2). On the other end of the spectrum, 11 moss families are represented by a single species in California. The 10 largest moss genera in California are in seven families, and they represent nearly 38 percent of the species recorded for the state (Table 3).

PREVIOUS WORKS

While published references for mosses occurring along the Pacific Coast of North America date back to the late 1800's (Sullivant 1856, 1864; Hampe 1860; Lesquereux 1865, 1868), the first floristic treatment of California mosses with identification keys appeared in volume II of *Botany of California* (Watson 1880). This work, based primarily on the collections of Bigelow, Bolander, and Brewer, listed 181 mosses for California with comments and references on 79 additional mosses thought to be probable based on specimens obtained in adjacent states or in habitats also known to occur in California. Watson built on the work of Sullivant (1856) and

TABLE 3. THE TEN LARGEST MOSS GENERA IN CALIFORNIA.

<i>Bryum</i>	41
<i>Orthotrichum</i>	30
<i>Grimmia</i>	29
<i>Sphagnum</i>	23
<i>Brachythecium</i>	22
<i>Pohlia</i>	19
<i>Racomitrium</i>	18
<i>Didymodon</i>	14
<i>Syntrichia</i>	14
<i>Tortula</i>	14

Lesquereux (1868) that cumulatively accounted for 177 mosses for California. As collecting continued in the early part of the 20th century, many new moss records for California were subsequently published in the *Moss Flora of North America* (Grout 1928–1940). Koch (1950a) systematically reviewed the herbarium record for mosses attributed to California. He added 39 mosses as new state records based primarily on his collections. His studies concluded that California had 317 mosses verified by specimens, 20 species of doubtful occurrence, and he excluded 68 mosses previously reported for California (Koch 1950a, 1954a). Koch also provided the first detailed assessment of the distribution of mosses for the state (Koch 1951a, 1954a). His efforts were exemplary in analyzing the bryological work conducted in California during the previous 70 years. During the 1970's through the 1990's, several moss floras based on county or other administrative units within California were developed as products of master's theses (Holmberg 1969; Jamieson 1969; Smith 1970; Spjut 1971; Strid 1974; Sigal 1975; McGrew 1976; Toren 1977; Long 1978; Mishler 1978; Harpel 1980a; Bourell 1981; Showers 1982; and Yurky 1990). These studies added new records for the state and contributed additional distribution and habitat information, including one species new to science (Showers 1980). An excellent overview of the history of California bryology was provided by Thiers and Emory (1992).

FUTURE OF BRYOLOGY IN CALIFORNIA

A variety of bryologists and plant enthusiasts continue to collect mosses in California. The senior author has made over 35,000 bryophyte collections in the state in the pursuit of writing a moss flora for California. These collections account for the majority of the new additions to the California moss flora made since the work of Koch (1950a). Additional moss records for California have resulted from bryological collecting by the junior author primarily in the central and southern Sierra Nevada. Large portions of California still need to be systematically collected by bryologists, especially the Great Basin, Desert Mojave and Desert Sonoran geographic subdivisions (Hickman 1993). During the field and herbarium work for this catalogue we



have determined that several moss species are new to science. Genera with undescribed Californian species include *Atrichum*, *Bryum*, *Homalothecium*, *Orthodicramm*, *Orthotrichum*, *Ptychomitrium*, *Schistidium*, *Syntrichia* and *Tortula*. These new taxa will be officially published in journals by us and other collaborators. Besides taxa that we have concluded are new to science, we also encountered many collections that we were not able to identify with a high level of confidence. Future work for monographers, especially within the Pottiaceae, will find much yet to discover within the collections residing in California herbaria. We are also convinced that noteworthy range extensions and mosses new for California remain to be documented.

The level of interest in California mosses is increasing. Various conservation groups concerned with the preservation of plant diversity are now beginning to include cryptogams in field surveys and in habitat conservation plans. For the first time, bryophytes are included in the 6th edition of the California Native Plant Society's *Inventory of rare and endangered plants of California* (CNPS 2001) and as a new component of the California Natural Diversity Database operated by the California Department of Fish and Game. Land management agencies are beginning to recognize and understand the important role bryophytes play in ecosystem function. This awareness is also creating the need for more field bryologists with collection and identification skills. The need for such bryological studies and training continues but few universities today consider floristic or bryogeographical studies to be appropriate for master's or doctoral degrees. The lack of professors trained in floristic botany further handicaps graduate students who wish to pursue these avenues of research, inquiry, or professional botanical employment. Nonetheless, bryology is a field where one can begin to explore without formal educational opportunities, especially if other mentors can be available to assist the budding bryologist. Schofield (1985), Malcolm and Malcolm (2000), Shaw and Goffinet (2000), and Crum (2001) are the four essential bryological works that will provide a foundation for the study of bryophytes. Lawton (1971) and Flowers (1973) are the two primary moss floras useful for the study of California mosses.

Bryological interest in California is currently centered in the northwestern portion of the state as a requirement to implement the Northwest Forest Plan. This federal land-use plan spanning three states (California, Oregon, and Washington) within the range of the northern spotted owl directs various surveys for cryptogams thought to be either rare or with undetermined viability. Many of these taxa are presumed to be restricted to late successional forest habitats. Efforts are now under way to expand the conservation of bryophytes first identified in the Sierra Nevada Ecosystem Project (Shevock 1996) and the subsequent plan amendment pro-

cess outlined in the Sierra Framework to update the 10 national forest land and resource management plans within the Sierra Nevada. The focus of bryological interest in the Sierra Nevada is centered on the conservation and management of fen habitats. Fens in the Sierra Nevada comprise about two percent of the land base yet they contain a high percentage of the species documented for this mountain range. It is again government interests, much as it was during the period of land surveys and expeditions of the 1800's to inventory the western United States (Slack 1993), that are providing the current career opportunities for taxonomic and conservation oriented botanists and bryologists.

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Other field-oriented biologists and bryologists have been extremely helpful in providing us specimens that either added taxa new to California or noteworthy range extensions. Special thanks to David Toren who has provided significant information on mosses of the North Coast Ranges, especially within Lake County and Mendocino National Forest, to Ken Kellman for his study of the mosses of Santa Cruz County, and to Eve Laeger for numerous mosses obtained primarily from the mountain ranges within the Great Basin and Mojave Desert. Other collectors who have contributed directly to this catalogue include Cheryl Beyer, Mona Bourell, Colin Dillingham, Gail Durham, Sandy Hare, Judy Harpel, Lawrence Jane-way, Ronald Robertson, Alan Whittemore and Dana York. Their efforts in supplying us specimens from undercollected regions of the state provided several noteworthy collections to this project. All of their contributions are greatly appreciated.

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APPENDIX I

CATALOGUE OF CALIFORNIA MOSSES

Mosses preceded by an asterisk (\*) denote those taxa that have not been previously reported in the bryological literature as occurring in California. The codes for the geographic subdivisions are provided in Figure 1. The number of specimens cited is not an indication of rarity or commonness except when fewer than five collections have been found.

*Acaulon rufescens* A. Jaeger [Pottiaceae]

**Literature:** Shevock and Toren 2001. As *Acaulon muticum* Howe 1896; Kellman 2003; Koch 1950a; Toren 1977; Yurky 1995. As *Acaulon muticum* var. *rufescens* Crum and Anderson 1981. As *Sphaerangium muticum* Brandegees 1891; Lesquereux 1868; Lesquereux and James 1884; Watson 1880.  
**Illustrations:** Crum and Anderson 1981; Smith 1978. As *Acaulon muticum* Ignatov and Ignatova 2003.  
**Geographic subdivisions:** CaR, CW, GV, NW, SN.  
**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris* 87165; Humboldt Co.: Highway 36 about 2 miles east of Carlotta, *Norris* 48206; Lake Co.: Indian Valley Lake near dam, *Norris* 67538; Monterey Co.: cemetery on Lockwood Road east of Alamo Air Strip, Hunter-Liggett Military Reservation, *Norris* 87322; Santa Barbara Co.: El Capitan State Beach west of Santa Barbara, *Norris* 68146; Sierra Co.: near Alleghany about 4 miles from Highway 49, Tahoe National Forest, *Norris* 67413; Trinity Co.: Trinity River about 4 miles east of Del Loma, Shasta-Trinity National Forest, *Norris* 72793.

*\*Acaulon triquetrum* (Spruce) C. Müller Hal. [Pottiaceae]

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Smith 1978; Zander 1993.  
**Geographic subdivisions:** CW, DSon, SW.  
**Selected specimens:** San Diego Co.: canyon above Bow Willow Canyon Campground, Anza Borrego State Park, *Norris* 77711 & 77720 (confirmed by Zander); San Luis Obispo Co.: Tower Road near west edge of Camp Roberts Military Reservation, *Norris* 100879.

*Aloina ambigua* (Bruch & W. P. Schimper) Limpricht [Pottiaceae]

**Literature:** Steere 1954; Steere et al. 1954. As *Aloina aloides* Kellman 2003. As *Aloina aloides* var. *ambigua* Harthill et al. 1979; Koch 1950a; McCleary 1972. As *Tortula ericaefolia* Howe 1897; Millspaugh and Nuttall 1923.  
**Illustrations:** Delgadillo 1975; Sharp et al. 1994; Smith 1978; Zander 1993.  
**Geographic subdivisions:** CaR, CW, DSon, NW, SN, SW.  
**Selected specimens:** Contra Costa Co.: Pine Canyon near Castle Rocks, Mt. Diablo State Park, *Norris* 100785; Imperial Co.: about 2 miles east of Mountain Springs County Park, *Norris* & Piippo 82084; Kern Co.: Rancheria Road about 2 miles from Kern River, *Shevock* 12846; Lake Co.: Chalk Mountain, North Fork of Cache Creek, *Toren* 7300 (CAS); Santa Barbara Co.: La Jolla Vieja Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock* & *Rodriguez* 20873 (determined by Delgadillo); Trinity Co.: Highway 299 about 3 miles west of Big Bar, Shasta-Trinity National Forest, *Norris* 67557; Tulare Co.: Elk Creek below Potwisha Campground, Sequoia National Park, *Norris*, *Shevock*, & *Barahona* 87575.

*Aloina bifrons* (De Notaris) Delgadillo [Pottiaceae]

**Literature:** As *Aloina pilifera* Flowers 1973; Harpel 1980a; Harthill et al. 1979; Lawton 1971; McCleary 1972. As *Aloina rigida* var. *pilifera* Koch 1949a; Steere 1954.  
**Illustrations:** Delgadillo 1975; Flowers 1973; Lawton 1971; Zander 1993.  
**Geographic subdivisions:** CW, DMoj, DSon, GV, SN, SW.  
**Selected specimens:** Fresno Co.: Highway 198 about 4 miles east of Coalinga, *Norris* 68051; Kern Co.: Hart Park northeast of Bakersfield, *Shevock* 12841; Lassen Co.: Amedee Canyon of Honey Lake, *Norris* 80994; Los Angeles Co.: Highway 138 about 3 miles west of Palmdale, *Norris* 68092; Riverside Co.: South Fork San Jacinto River about 7 miles east of Hemet, *Norris* 58045 and Rouse Ridge Road, San Jacinto Mountains, *Harpel* 171 (pers. herb.); San Luis Obispo Co.: Highway 58 about 1 mile east of La Panza Ranch, Los Padres National Forest, *Norris* 76287.

***Aloina rigida* (Hedwig) Limpricht [Pottiaceae]**

**Literature:** Harthill et al. 1979; Kellman 2003; Koch 1950a; Lawton 1971; Mishler 1978; Sayre 1940.

**Illustrations:** Crum and Anderson 1981; Delgadillo 1975; Ignatov and Ignatova 2003; Lawton 1971; Sharp et al. 1994; Smith 1978; Zander 1993.

**Geographic subdivisions:** CW, GV, SN, SW.

**Selected specimens:** Fresno Co.: Warthan Creek about 7 miles from Coalinga, *Norris* 55133; Madera Co.: County Road 29 near Eastman Lake, *Shevock* 14915; Monterey Co.: School Hill, Francis Simes Hastings Reservation, *Linsdale* 301 (UC); Riverside Co.: Santa Margarita Ecological Reserve, SDSU, *Kellman* 1279b (CAS); San Luis Obispo Co.: Highway 58 about 1 mile east of La Panza Ranch, *Norris* 76284; Santa Clara Co.: Alum Rock Park, San Jose, *Steere & Sharp s.n.* (UC); Santa Cruz Co.: near China Grade Road and Highway 236, Big Basin Redwoods State Park, *Kellman* 1307 (CAS).

***Alsia californica* (W. J. Hooker & Arnott)**

**Sullivant** [Leptodontaceae]

**Literature:** Bradshaw 1926; Brandegee 1891; Harthill et al. 1979; Holmberg 1969; Jamieson 1969; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Manuel 1974; McCleary 1972; Millspaugh and Nuttall 1923; Sayre 1940; Shevock and Toren 2001; Steere 1954; Sullivant 1856; Thomson and Ketchledge 1958; Watson 1880; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Alsia californica* var. *flagellifera* Renauld and Cardot 1889.

**Illustrations:** Brotherus 1924–1925; Lawton 1971; Manuel 1974; Sharp et al. 1994.

**Geographic subdivisions:** CaR, CW, NW, SW.

**Selected specimens:** Humboldt Co.: Dry Lagoon State Park, *Norris* 46053; Lake Co.: Hidden Valley at Hartman Creek north of Middletown, *Toren & Dearing* 5195 (CAS); Monterey Co.: Highway 1, about 10 miles south of Lucia, Los Padres National Forest, *R. & I. Duell* 1836 (UC); San Luis Obispo Co.: Highway 1 north of Moro Bay about 0.5 mile east of Cambria, *Norris* 68209; Santa Cruz Co.: Zayante Canyon Road, 4 miles south of Summit Road north of Felton, *Norris* 86871. Sonoma Co.: Austin Creek near intersection with Russian River, *Norris* 53138; Yuba Co.: north of County Road 130, 3 miles north of Challenge, *Dillingham* 989 (CAS).

***Amblystegium juratzkanum* W. P. Schimper**

[Amblystegiaceae]

**Literature:** Flowers 1973; Harpel 1980a; Harthill et al. 1979; Kellman 2003; Koch 1950a; Lawton 1971; Long 1978; McGrew 1976; Mishler 1978; Showers 1982; Spjut 1971; Steere et al. 1954.

**Illustrations:** Flowers 1973; Lawton 1971.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SW.

**Selected specimens:** Modoc Co.: north of Middle Alkali Lake northeast of Cedarville, *Norris* 47480; Mono Co.: near Mildred Lake, head of Convict Creek Trail, Inyo National Forest, *Whittemore* 1510 (CAS); Riverside Co.: Strawberry Cienaga, San Jacinto Mountains, San Jacinto State Park, *Harpel* 819 (pers. herb.); Santa Clara Co.: Big Basin Way (Highway 9) about 2 miles southwest of Saratoga, *R. & I. Duell* 2170 (UC); Siskiyou Co.: Haypress Meadows, Marble Mountain Wilderness, Klamath National Forest, *Norris* 12409; Trinity Co.: trail to Packers Peak from Big Flat, Shasta-Trinity National Forest, *Norris* 8949.

***Amblystegium serpens* (Hedwig) Bruch & W. P. Schimper** [Amblystegiaceae]

**Literature:** Harpel 1980a; Harthill et al. 1979; Kellman 2003; Kingman 1912; Koch 1950a, 1951e, 1958; Lawton 1971; Long 1978; Shevock and Toren 2001; Showers 1982; Spjut 1971; Strid 1974; Toren 1977. As *Hypnum serpens* Lesquereux 1868; Sullivant 1856; Watson 1880.

**Illustrations:** Buck 1998; Flowers 1973; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SNE, SW.

**Selected specimens:** Los Angeles Co.: Devils Punchbowl Canyon, San Gabriel Mountains, Angeles National Forest, *Harpel* 582 (pers. herb.); Monterey Co.: Arroyo Seco, *Norris* 48517; San Francisco Co.: Golden Gate Park, *Koch* 1635 (UC) and *Norris & Shevock* 97033; Tulare Co.: Cedar Creek, South Fork Kaweah River, Sequoia National Park, *Showers* 3273 (SFSU) and Kern Plateau off of Sirretta Pass Trail above Big Meadows, Sequoia National Forest, *Shevock & Ng* 17553.

***Amblystegium varium* (Hedwig) Lindberg**

[Amblystegiaceae]

**Literature:** Flowers 1973; Harthill et al. 1979; Kingman 1912; Koch 1950a; Mishler 1978; Toren 1977. As *Orthotheciella varia* Kellman 2003; Ochrya 1998a.

**Illustrations:** Flowers 1973; Hedenäs 2003; Ireland 1982; Sharp et al. 1994.

**Geographic subdivisions:** CW, DMoj, SN, SW.

**Selected specimens:** Kern Co.: Kern Plateau, Caldwell Creek near Kernville, Sequoia National Forest, *Laeger* 310 (CAS) and BLM Short Canyon ACEC west of Highway 14, *Laeger & Davis* 1290 (CAS) [determined by Hedenäs]; Mariposa Co.: in stream below Highway 49 about 3.3 miles southeast of Mariposa, *Shevock* 15238; San Bernardino Co.: East Fork Mountain Home Creek, San Bernardino Mountains, San Bernardino National Forest, *Wheeler* 8231 (CAS, UC); Santa Cruz Co.: along San Lorenzo River, Ben Lomond, *Kellman* 1477 (CAS); Tulare Co.: South Creek at South Creek Falls, Sequoia National Forest, *Norris* 87081.



***Amphidium californicum* (Hampe ex C. Müller Hal.) Brotherus** [Rhabdoweisiaceae]

**Literature:** Bourell 1981; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Koch 1950a, 1951e; Lawton 1971; Long 1978; Spjut 1971; Strid 1974; Toren 1977; Yurky 1995. As *Anoetangium californicum* Howe 1897. As *Amphoridium californicum* Lesquereux and James 1884; Moxley 1928. As *Zygodon californicus* Lesquereux 1868; Watson 1880.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, CW, MP, NW, SN. **Selected specimens:** Del Norte Co.: Smith River, Jedediah Smith Redwoods State Park, *Norris* 67327; Modoc Co.: near Mayfield Ice Caves (Siskiyou Co.), *Norris* & *Hermann* 22157; Siskiyou Co.: Upper Cliff Lakes, Klamath National Forest, *Norris* 53007; Sonoma Co.: The Cedars north of Cazadero, *Ertter & Raiche* 12859 (UC); Tulare Co.: Potwisha Campground, Marble Fork Kaweah River, Sequoia National Park, *Shevock* 12976.

***Amphidium lapponicum* (Hedwig) W. P. Schimper** [Rhabdoweisiaceae]

**Literature:** Flowers 1973; Holmberg 1969; Koch 1950a, 1958; Koch and Ikenberry 1954; Lawton 1971; McGrew 1976; Showers 1982. As *Zygodon lapponicus* Lesquereux 1868; Spjut 1971; Watson 1880.

**Illustrations:** Abramov and Volkova 1998; Flowers 1973; Ignatov and Ignatova 2003; Ignatov and Lewinsky-Haapasaari 1994; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN, SNE. **Selected specimens:** Del Norte Co.: Little Sanger Peak, Siskiyou National Forest, *Norris* 70874; Lake Co.: west of Forest Road M-3 at Low Gap near Sheetiron Mountain, Mendocino National Forest, *Shevock, Bourell, & Toren* 15867; Mono Co.: Barney Lake, Toiyabe National Forest, *Norris* 67090; Siskiyou Co.: trail to Long Gulch Lake southwest of Callahan, Klamath National Forest, *Norris* 57522; Tehama Co.: Gurnsey Creek east of Mineral, Plumas National Forest, *Norris* 48113; Tulare Co.: General's Highway west of Clover Creek, Sequoia National Park, *Shevock & Tseng* 15755.

**\**Amphidium mougeotii* (Bruch & W. P. Schimper) Schimper** [Rhabdoweisiaceae]

**Illustrations:** Abramov and Volkova 1998; Ignatov and Ignatova 2003; Ignatov and Lewinsky-Haapasaari 1994; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN. **Selected specimens:** Del Norte Co.: near Doctor Rock, Siskiyou Wilderness, Six Rivers National Forest, *Norris* 50287; Fresno Co.: Mist Falls Trail along South Fork Kings River, Kings Canyon National Park, *Shevock & York* 14492; Plumas Co.: about 2 miles below Cresta Power Station, *Norris* 52628; Siskiyou Co.: Duck Lake Trail near Parrot's

Mill Road, Klamath National Forest, *Norris* 22866; Tuolumne Co.: Stanislaus River at Board Mill near Sourgrass Campground, Stanislaus National Forest, *Norris* 77159.

***Anacolia baueri* Hampe** [Bartramiaceae]

**Literature:** Moxley 1928. As *Anacolia menziesii* var. *baueri* Koch 1950a; Lawton 1971; McCleary 1972; Toren 1977.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, CW, DMoj, NW, SN, SW.

**Selected specimens:** El Dorado Co.: Rock Creek Road about 4.5 miles east of Highway 193, Eldorado National Forest, *Norris & Piippo* 82290; Glenn Co.: along Ivory Mill Road west of town of Elk Creek, Mendocino National Forest, *Shevock* 15796; Los Angeles Co.: Highway 138 about 3 miles west of Palmdale, *Norris* 68093; Mariposa Co.: Merced River near South Fork, Sierra National Forest, *Norris* 69812; Santa Barbara Co.: Torrey Pine Forest, Santa Rosa Island, Channel Islands National Park, *Shevock & Norris* 20789; Siskiyou Co.: Klamath River, 1 mile west of Ash Creek Bridge, Highway 96, Klamath National Forest, *Norris* 77961; Tulare Co.: Elk Creek near Potwisha Campground, Sequoia National Park, *Shevock, Norris, & Barahona* 13192.

***Anacolia laevisphaera* (Taylor) Flowers in Grout** [Bartramiaceae]

**Literature:** Harthill et al. 1979.

**Illustrations:** Allen 2002; Sharp et al. 1994.

**Geographic subdivisions:** CaR, SN, SW.

**Selected specimens:** Butte Co.: Grubb Road about 3 miles east of Palermo, *Norris* 73582; Fresno Co.: Tollhouse Rock along Tollhouse Road, Sierra National Forest, *Shevock & York* 12715; San Diego Co.: near Campo, *Haring* 423 (UC); Tulare Co.: Marble Falls trail above Potwisha Campground, Sequoia National Park, *Shevock* 12973.

***Anacolia menziesii* (Turner) Paris** [Bartramiaceae]

**Literature:** Bourell 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Kingman 1912; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Long 1978; Mishler 1978; Sayre 1940; Shevock and Toren 2001; Showers 1982; Sigal 1975; Spjut 1971; Steere 1954; Steere et al. 1954; Strid 1974; Toren 1977; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Anacolia aristifolia* Cooke 1941. As *Bartramia menziesii* Bradshaw 1926; Lesquereux 1868; Watson 1880.

**Illustrations:** Flowers 1973; Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** CaR, CW, DMoj, DSon, NW, SN, SW.

**Selected specimens:** Fresno Co.: Highway 180 at Horseshoe Bend above the Kings River, Sequoia National Forest, *Shevock & York* 12324a; Los An-



geles Co.: slopes of Orizaba Mountain, Santa Catalina Island, *Shevock & Thorne 4033*; Riverside Co.: between Key Ranch and Barker Dam, Joshua Tree National Park, *Norris 50538*; San Francisco Co.: Castro and 30th Streets, San Francisco, *Toren 8020* (CAS); Siskiyou Co.: Salmon River at Nordheimer Creek, Klamath National Forest, *Norris & Hermann 22768*; Tuolumne Co.: slopes of Pilot Ridge, South Fork Tuolumne River, Stanislaus National Forest, *Shevock & Haas 13427*.

**\**Andraeaea alpestris* (Thedenius) W. P. Schimper** [Andraeaceae]

**Illustrations:** Murray 1988.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Del Norte Co.: Whiskey Lake, Six Rivers National Forest, *Norris 83366*; Inyo Co.: Treasure Lake west of Big Pine, John Muir Wilderness, Inyo National Forest, *Norris 46974 & 46975*; Siskiyou Co.: trail to Long Gulch Lake southwest of Callahan, Klamath National Forest, *Norris 57543* (confirmed by Murray) and McCloud River about 5 miles east of McCloud, Shasta-Trinity National Forest, *Norris & Hillyard 103919*.

***Andraeaea blyttii* W. P. Schimper** [Andraeaceae]

**Literature:** Jessup 2000; Koch 1950a; Lawton 1971.

**Illustrations:** Lawton 1971; Murray 1988.

**Geographic subdivisions:** CaR, NW.

**Selected specimens:** Siskiyou Co.: about 1 mile west of Elk Lick, Klamath National Forest, *Norris 23231* and McCloud River about 5 miles east of McCloud, Shasta-Trinity National Forest, *Norris & Hillyard 103916*; Tehama Co.: Mill Creek about 0.5 mile beyond Mill Creek Campground, *Norris 55915*.

**\**Andraeaea heinemannii* Hampe & C. Müller Hal.** [Andraeaceae]

**Illustrations:** Murray 1987b.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Calaveras Co.: North Fork Mokelumne River west of Moore Creek, Stanislaus National Forest, *Shevock 21742* (determined by Murray); Lake Co.: Boggs Mountain State Forest, *Showers 1810* (SFSU) and Cobb Mountain, *Toren & Dearing 7114* (CAS) [determined by Murray]; Madera Co.: above Whiskey Creek Falls, Sierra National Forest, *Shevock, Norris, & Beyer 20237*; Marin Co.: East Peak, Mt. Tamalpais State Park, *Robertson 1728* (UC); Mariposa Co.: Highway 41 below Wawona Tunnel, Yosemite National Park, *Shevock & Norris 20178*; Shasta Co.: Castle Lake at Castle Lake Creek southwest of Mt. Shasta City, Shasta-Trinity National Forest, *Norris & Hillyard 103852*; Siskiyou Co.: McCloud River, 5 miles east of McCloud, Shasta-Trinity National Forest, *Norris & Hillyard 103898*; Tehama Co.: Highway 36 at milespost 96, *Norris 55953*; Tulare Co.: Lloyd

Meadows Basin, Sequoia National Forest, *Shevock 14259* (confirmed by Murray).

***Andraeaea nivalis* W. J. Hooker** [Andraeaceae]

**Literature:** Showers 1982.

**Illustrations:** Ignatov and Ignatova 2003; Lawton 1971; Murray 1988; Smith 1978.

**Geographic subdivisions:** CaR.

**Selected specimens:** Shasta Co.: Redding Peak near Cliff Lake, Lassen Volcanic National Park, *Showers 3580* (UC) [confirmed by Murray].

***Andraeaea rothii* Weber & D. Mohr** [Andraeaceae]

**Literature:** Lawton 1971.

**Illustrations:** Abramov and Volkova 1998; Ireland 1982; Lawton 1971; Murray 1988; Smith 1978.

**Geographic subdivisions:** NW.

**Selected specimens:** Lake Co.: east slope of Cobb Mountain, *Toren & Dearing 7115 & 7116* (CAS) [determined by Murray]; Siskiyou Co.: one mile east of Copper Butte, Klamath National Forest, *Norris 50250* (determined by Murray).

***Andraeaea rupestris* Hedwig** [Andraeaceae]

**Literature:** Jessup 2000; Koch 1950a; Showers 1982; Toren 1977.

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Murray 1988; Sharp et al. 1994.

**Geographic subdivisions:** CaR, MP, NW, SN, SNE.

**Selected specimens:** Amador Co.: above Kirkwood Lake east of Kirkwood, Eldorado National Forest, *Norris 82728*; Fresno Co.: slopes above Lower Twin Lake, Kaiser Wilderness, Sierra National Forest, *Shevock, Ertter, & Laeger 22857* (confirmed by Murray); Humboldt Co.: headwaters of Oregon Creek north of Trinity Summit Guard Station, Six Rivers National Forest, *Norris & Creek 50092*; Inyo Co.: above Treasure Lake west of Big Pine, John Muir Wilderness, Inyo National Forest, *Norris 46979*; Modoc Co.: Alcohol Crater Rim, Modoc National Forest, *Harpel 16324* (pers. herb.); Shasta Co.: Hot Springs Creek above Devil's Kitchen, Lassen Volcanic National Park, *Showers 2398* (UC); Siskiyou Co.: Long Gulch Lake southwest of Callahan, Klamath National Forest, *Norris 57500 & 57534* (confirmed by Murray).

***Andraeaea schofieldiana* B. M. Murray** [Andraeaceae]

**Literature:** Christy and Wagner 1996.

**Illustrations:** Murray 1987a.

**Geographic subdivisions:** CaR, NW.

**Selected specimens:** Del Norte Co.: Whiskey Lake, Six Rivers National Forest, *Norris 57721 & 83378*; Siskiyou Co.: about 1 mile west of Elk Lick, Klamath National Forest, *Norris 23220* (confirmed by Murray).

***Anomobryum julaceum* (Schrader ex P. G. Gärtner, B. Meyer & Scherbis) W. P. Schimper** [Bryaceae]

**Literature:** Kellman 2003. As *Anomobryum filiforme* Koch 1950a. As *Pohlia filiformis* Lawton 1971.

**Illustrations:** Allen 2002; Crum and Anderson 1981; Ireland 1982; Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Contra Costa Co.: Mt. Diablo State Park, *Norris 100541*; Humboldt Co.: road to Petrolia, 0.5 mile above Ferndale, *Peterson 206* (UC) and Highway 96 near Skunk Creek about 3 miles south of Weitchpec, *Norris 58309*; Mariposa Co.: Yosemite Falls, Yosemite National Park, *Koch 1685* (Koch 1950a); Santa Cruz Co.: Quail Hollow Ranch County Park, *Kellman 193* (UC) & *948* (CAS) [confirmed by Spence]; Big Basin Redwoods State Park, *Schofield 29129* (UC) [determined by Shaw], Empire Grade about 0.5 mile uphill from Smith Grade, *Kellman 1455* (CAS) and near China Grade Road and Highway 236, Big Basin Redwoods State Park, *Kellman 1314* (CAS); Shasta Co.: Clear Creek below Clear Creek Bridge, *Shevock, Toren, & Dearing 23874* and near Whiskeytown Environmental Camp, Whiskeytown National Recreation Area, *Shevock & Toren 23888*; Sonoma Co.: Calistoga Road near intersection with St. Helena Road about 3 miles north of Highway 12 near Santa Rosa, *Robertson 531* (CAS).

***Antitrichia californica* Sullivant in Lesquereux** [Leucodontaceae]

**Literature:** Bourell 1981; Bradshaw 1926; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Kingman 1912; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Long 1978; McCleary 1972; Millspaugh and Nuttall 1923; Mishler 1978; Sayre 1940; Shevock and Toren 2001; Showers 1982; Spjut 1971; Steere 1954; Thomson and Ketchledge 1958; Toren 1977; Watson 1880; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Antitrichia californica* var. *ambigua* Renauld and Cardot 1890.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SW.

**Selected specimens:** Lake Co.: Clear Lake State Park, *Norris 47721*; Modoc Co.: Boles Creek southeast of Clear Lake, *Norris 79170*; Monterey Co.: Nacimiento-Ferguson Road at boundary of Hunter-Liggett Military Reservation, *Norris 87344*; Orange Co.: Silverado Canyon, Cleveland National Forest, *Shevock 3995*; Shasta Co.: Fall Creek Road at Dekkas Rock above Lake Shasta, Shasta-Trinity National Forest, *Norris 84814*; Tulare Co.: Wishon Fork Tule River above Wishon Campground, Sequoia National Forest, *Shevock & Morosco 16802*.

***Antitrichia gigantea* (Renauld & Cardot) Kindberg** [Leucodontaceae]

**Literature:** As *Antitrichia curtispindula* Christy and Wagner 1996; Harthill et al. 1979; Holmberg

1969; Jamieson 1969; Koch 1950a; Lawton 1971; Lesquereux 1868; Long 1978; Sullivant 1856; Thomson and Ketchledge 1958. As *Antitrichia curtispindula* var. *gigantea* Lesquereux 1868; Watson 1880.

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Lawton 1971; Schofield 1969b.

**Geographic subdivisions:** CaR, CW, NW.

**Selected specimens:** Del Norte Co.: French Hill Road about 3.5 miles above Highway 199 southwest of Gasquet, Six Rivers National Forest, *Norris 85058*; Humboldt Co.: East Fork about 5 air miles north of Mad River, Six Rivers National Forest, *Norris 83891*; Mendocino Co.: Mill Creek County Park Recreational Area about 8 miles east of Ukiah, *Norris 72636*; and Hopland, *Layne s.n.* (UC); San Mateo Co.: Butano Fire Trail, Butano State Park, *Becking 910614* (UC); Siskiyou Co.: Doe Creek, *Norris 23077* and McCloud River Preserve, The Nature Conservancy, *Norris & Hillyard 106581*; Trinity Co.: Canyon Creek between Ripstein Camp and McKay Camp, *Norris 8001*.

***Archidium alternifolium* (Dickson ex Hedwig) Mitten** [Archidiaceae]

**Literature:** Kellman 2003. The historic California collections cited in the bryological literature as *Archidium alternifolium* we have determined to represent *Pleuridium subulatum*. This species, however, was recently confirmed for the state.

**Illustrations:** Grout 1928–1940; Ignatov and Ignatova 2003; Snider 1975.

**Geographic subdivisions:** CW.

**Selected specimens:** Santa Cruz Co.: Headwaters of Pleasley Gulch near Wilder Ridge Loop Trail, Wilder Ranch State Park, *Kellman 2249* (CAS) [confirmed by Spence].

***Arctoa fulvella* (Dickson) Bruch & W. P. Schimper** [Dicranaceae]

**Literature:** McGrew 1976.

**Illustrations:** Crum and Anderson 1981; Smith 1978.

**Geographic subdivisions:** CaR, NW.

**Selected specimens:** Siskiyou Co.: Russian Lake, Klamath National Forest, *McGrew 378* (UC), Little Grayback, near Indian Creek, *Holmberg 921* (UC), Granite Creek between Tickner Creek and Blue Granite Lake, Klamath National Forest, *Norris 52325*, Sawtooth Ridge at crest of Caribou Rim along trail from Big Flat to Caribou Basin, Klamath National Forest, *Norris 9211*; Trinity Co.: crest of ridge above East Weaver Lake, *Norris 9374*.

***Atractyllocarpus flagellaceus* (C. Müller Hal.) Williams** [Dicranaceae]

**Literature:** Shevock 2000. [See also Frahm & Isoviita 1988.]

**Illustrations:** Sharp et al. 1994.

**Geographic subdivisions:** CaR, NW.

**Selected specimens:** Butte Co.: Upper Bidwell



Park between Big Chico Creek and Sycamore Creek, *Janeway 6986* (UC); Trinity Co.: Highway 299 about 0.25 mile from road junction to Helena, Shasta-Trinity National Forest, *Shevock, Lin, & Chen 17741* (determined by J-P Frahm) and *Norris 99803*; Highway 299 near Whites Bar Creek west of Big Bar, *Norris 68431*.

***Atrichum selwynii* Austin** [Polytrichaceae]

**Literature:** Bourell 1981; Holmberg 1969; Jamieson 1969; Kellman 2003; Lawton 1971; Smith 1970; Spjut 1971; Stark and Whittemore 1992; Toren 1977; Yurky 1990.

**Illustrations:** Flowers 1973; Frye 1949; Lawton 1971; Nyholm 1971.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Contra Costa Co.: Mt. Diablo State Park, *Norris 100482*; Humboldt Co.: Tolkan Recreation Area east of Shelter Cove, *Norris 23469*; Mariposa Co.: near Crane Flat Meadow, Yosemite National Park, *Kellman 548* (CAS); Placer Co.: Drum Forebay Road about 1 mile north of Highway 80, Tahoe National Forest, *Norris 81987*; Santa Clara Co.: Highway 9 about 2 miles from Saratoga, *R. & I. Duell 2178* (UC); Trinity Co.: Highway 36 about 4 miles west of Forest Glen, *Norris 23849*.

***Atrichum undulatum* (Hedwig) Palisot de Beauvois** [Polytrichaceae]

**Literature:** Brandegees 1891; Kellman 2003; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lesquereux 1868; Steere et al. 1954; Yurky 1990, 1995. As *Catharinea callibryon* Watson 1880. As *Catharinea undulata* Bradshaw 1926.

**Illustrations:** Abramov and Volkova 1998; Ignatov and Ignatova 2003; Ignatov and Smith Merrill 1995; Ireland 1982; Nyholm 1971; Smith 1978.

**Geographic subdivisions:** CW, NW, SN.

**Selected specimens:** Calaveras Co.: Moran Creek 1 mile north of Avery, *Wagner 4360* (UC); Sonoma Co.: Guerneville, *Cook 244* (UC); Santa Cruz Co.: Quail Hollow Ranch, *Kellman 300* (CAS) and Last Chance Road near Last Chance Creek, *Kellman 896* (CAS).

***Aulacomnium androgynum* (Hedwig) Schwägrichen** [Aulacomniaceae]

**Literature:** Bradshaw 1926; Bourell 1981; Cooke 1941; Crum and Anderson 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Jamieson 1969; Kellman 2003; Kingman 1912; Koch 1949a, 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Long 1978; McGrew 1976; Shevock and Toren 2001; Showers 1982; Sigal 1975; Smith 1970; Spjut 1971; Steere et al. 1954; Sullivant 1856; Thomson and Ketchledge 1958; Toren 1977; Watson 1880; Yurky 1990, 1995.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SNE, SW.

**Selected specimens:** Kern Co.: Greenhorn Mountains near Greenhorn Summit, Sequoia National Forest, *Shevock 15096*; Lake Co.: Upper Nye Campground, Snow Mountain, Mendocino National Forest, *Shevock, Bourell, & Toren 15851*; Modoc Co.: Joseph Creek, Warner Mountains, Modoc National Forest, *Sanger s.n.* (UC); Riverside Co.: Indian Creek, James Reserve, San Jacinto Mountains, *Harpel 1399* (pers. herb.); Santa Clara Co.: Abohe Creek above Hidden Villa Ranch, *Herre & Wiggins 27* (UC); San Diego Co.: confluence of Doane and French Creek, Palomar Mountains, *Stark 546* (MO); Siskiyou Co.: Elk Creek at Malone Creek south of Happy Camp, Klamath National Forest, *Norris 52231*.

***Aulacomnium palustre* (Hedwig) Schwägrichen** [Aulacomniaceae]

**Literature:** Flowers 1973; Harthill et al. 1979; Kellman 2003; Koch 1949a, 1950a, 1958; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; McCleary 1972; McGrew 1976; Showers 1982; Spjut 1971; Watson 1880.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SNE.

**Selected specimens:** Butte Co.: Jonesville, *Cope-land 1551* (UC); Humboldt Co.: Bald Mountain between High Prairie and Snow Camp, *Tracy 4600* (UC); Lake Co.: north cirque of Hull Mountain, Mendocino National Forest, *Toren & Dearing 7228* (CAS); Mono Co.: Mormon Meadow, Cinnabar Canyon off of Highway 270, 3 miles east of Highway 395 on road to Bodie, *Shevock 15341*; Siskiyou Co.: near Monument Lake, Marble Mountain Wilderness, Klamath National Forest, *Norris & Spjut 12434*; Tulare Co.: Mosquito Lakes, Mineral King, Sequoia National Park, *Shevock & O'Brien 15965*.

***Barbula convoluta* Hedwig** [Pottiaceae]

**Literature:** Brandegees 1891; Crum and Anderson 1981; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Mishler 1978; Shevock and Toren 2001; Showers 1982; Spjut 1971; Steere 1954; Steere et al. 1954; Sullivant 1856; Toren 1977; Watson 1880; Zander 1997.

**Illustrations:** Abramov and Volkova 1998; Allen 2002; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Saito 1975; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, DMoj, DSon, GV, NW, SN, SW.

**Selected specimens:** Fresno Co.: Auberry, *Ikenberry 1020* (MO) [determined by Koch; Zander]; Humboldt Co.: False Klamath Cove, Redwood Na-



tional Park, *Norris* 48302; Inyo Co.: mouth of Cottonwood Canyon, Death Valley National Park, *Kellman, Shevock, York, & Knaus* 1415a (CAS) [determined by Stark]; Monterey Co.: Hastings Reservation, *Linsdale* 41-45 (UC) and Pacific Grove, *Heller* 6485 (MO); Riverside Co.: Devils Slide Trail, San Jacinto Mountains, San Bernardino National Forest, *Harpel* 949 (pers. herb.); San Francisco Co.: De Laveaga Dell, Aids Memorial Grove, Golden Gate Park, *Shevock* 19517 and Twin Peaks, *Eastwood* 57 (MO) [determined by Zander]; Shasta Co.: Millville Plains Road about 6 miles east of Anderson, *Norris* 23695; Sutter Co.: Philip Road near junction with Fiddymont Road northwest of Roseville, *Norris* 103783; Tulare Co.: Pixley Vernal Pools Preserve, San Joaquin Valley, *McClintock* s.n. (CAS, UC).

**\**Barbula ehrenbergii* (Lorentz) Fleischer**  
[Pottiaceae]

**Illustrations:** Flowers 1973.

**Geographic subdivisions:** SNE.

**Selected specimens:** Mono Co.: Convict Lake Trail near trail junction to Lake Genevieve, John Muir Wilderness, Inyo National Forest, *Shevock & York* 20011.

**\**Barbula eustegia* Cardot & Thériot**  
[Pottiaceae]

**Illustrations:** Flowers 1973; Lawton 1971.

**Geographic subdivisions:** CW, GV.

**Selected specimens:** Contra Costa Co.: Mitchell Canyon, Mt. Diablo State Park, *Norris* 100603; Shasta Co.: Highway turnoff for Shasta College north of Redding, *Norris* 56653 & 57784.

***Barbula unguiculata* Hedwig** [Pottiaceae]

**Literature:** Harpel 1980a; Harthill et al. 1979; Kellman 2003; Koch 1950a; Shevock and Toren 2001.

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Saito 1975; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, DMoj, NW, SW.

**Selected specimens:** Butte Co.: Grubb Road about 3 miles east of Palermo, *Norris* 73596; Los Angeles Co.: Ferndale, *MacFadden* 22740 (MO) [determined by Zander]; Lake Co.: Library Park, Lakeport, *Toren* 7663 (CAS); Mendocino Co.: Pygmy Forest about 5 miles east of Albion, *Norris* 11784; Orange Co.: Walker Lee Drive, Rossmoor, *Norris* 57806; Riverside Co.: Carrizo Creek, Santa Rosa Mountains, *Harpel* 1392 (pers. herb.); San Francisco Co.: Presidio of San Francisco, *Shevock* 19360; Ventura Co.: Upper North Fork Matilija Creek, Matilija Wilderness, Los Padres National Forest, *Shevock* 12556.

***Bartramia ithyphylla* Bridel** [Bartramiaceae]

**Literature:** Crum and Anderson 1981; Flowers 1973; Koch 1950a, 1958; Lawton 1971; Lesquer-

eux 1868; McGrew 1976; Showers 1982; Spjut 1971; Watson 1880.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Alpine Co.: Winnemucca Lake, Eldorado National Forest, *Norris* 71271; Fresno Co.: Taboose Pass Trail, headwaters of South Fork Kings River, Kings Canyon National Park, *Shevock* 13852; Mono Co.: Tioga Junction Campground, about 2.5 miles north of Tioga Pass on Highway 120, Inyo National Forest, *Norris* 48346; Siskiyou Co.: South Fork Lakes west of Callahan, Klamath National Forest, *Norris* 76910; Tuolumne Co.: Lower Young Lake, Yosemite National Park, *Messick* 677 (UC).

***Bartramia pomiformis* Hedwig** [Bartramiaceae]

**Literature:** Holmberg 1969; Spjut 1971.

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, NW.

**Selected specimens:** Del Norte Co.: shore of Sanger Lake, Siskiyou National Forest, *Norris* 70835, Smith River at Middle Fork Jones River, *Norris* 46235 and Smith River about 16 miles east of Gasquet on Highway 199, *Norris* 8894; Humboldt Co.: Goose Creek, *Norris* 56492; Siskiyou Co.: near Sugar & Salmon Creeks, Marble Mountains, Klamath National Forest, *Halling* 1350 (CAS, SFSU), northeast of Cook and Green Pass, Rogue River National Forest, *Shevock & Toren* 20014; Trinity Co.: Onion Lake Road about 7 miles south of Onion Lake, *Norris* 72521.

***Bartramia stricta* Bridel** [Bartramiaceae]

**Literature:** Brandegee 1891; Harthill et al. 1979; Howe 1897; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Long 1978; McCleary 1972; Sayre 1940; Shevock and Toren 2001; Showers 1982; Toren 1977; Watson 1880; Whittemore and Sommers 1999; Yurky 1990, 1995.

**Illustrations:** Lawton 1971. See also Hermann 1980.

**Geographic subdivisions:** CaR, CW, GV, NW, SN, SW.

**Selected specimens:** Humboldt Co.: Trinity River about 2 miles east of Salyer, Shasta-Trinity National Forest, *Norris* 67267; Lake Co.: north end of Bachelor Valley near Hell's Peak, *Toren & Dearing* 6862 (CAS) [confirmed by Griffin III]; Nevada Co.: Slack's Ravine, Highway 20 about 7 miles west of Rough and Ready, *Norris* 67461; Riverside Co.: Santa Margarita River between Temecula and Fallbrook, SDSU Santa Margarita Ecological Reserve, *Shevock & Jessup* 20534; San Francisco Co.: Glen Canyon, *Shevock* 19185; San Luis Obispo Co.: Santa Rosa Creek about 0.5 mile east of Cambria, *Norris* 68215; Shasta Co.: Sacramento River Trail

northeast of Redding, *Norris* 105288; Tehama Co.: Highway 36 about 2 miles southwest of Dales, *Norris* 55994.

***Bestia longipes* (Sullivant & Lesquereux)**

**Brotherus** [Brachytheciaceae]

**Literature:** Harthill et al. 1979; Kellman 2003; Koch 1950a; Mishler 1978; Steere 1954; Toren 1977; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Alsia longipes* Bradshaw 1926; Kingman 1912; Lequereux 1868. Misapplied as *Bestia "brevipes"* McCleary 1972.

**Illustrations:** Grout 1928–1940; Sullivant 1864.

**Geographic subdivisions:** CaR, CW, NW, SN, SW.

**Selected specimens:** Alameda Co.: Strawberry Creek east of Hilgard Hall, U. C. Berkeley, *Norris* 82503; Humboldt Co.: South Fork Trinity River, *Tracy* 7371 (UC); Lake Co.: base of Mt. Konocti, Clear Lake State Park, *Toren* 6844 (CAS); Placer Co.: Clover Creek at Sierra College Road, *Norris* 81932; Santa Barbara Co.: off Highway 154 along old Stagecoach Road at Cold Springs Tavern, Los Padres National Forest, *Laeger* 526 (CAS) and Water Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock & Rodriguez* 20817; Santa Cruz Co.: Zayante Canyon Road about 4 miles south of Summit Road north of Felton, *Norris* 86869; Shasta Co.: Indian Springs, Castle Crags State Park, *Norris* 103037; Siskiyou Co.: Highway 96 about 2 miles east of Fort Goff, Klamath National Forest, *Norris* 72272.

***Blindia acuta* (Hedwig) Bruch & W. P.**

**Schimper** [Seligeriaceae]

**Literature:** Crum and Anderson 1981; Holmberg 1969; Kellman 2003; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; McGrew 1976; Showers 1982; Thomson and Ketchledge 1958.

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW, SN, SNE.

**Selected specimens:** Alpine Co.: Winnemucca Lake, Mokelumne Wilderness, Eldorado National Forest, *Norris* 71263; Humboldt Co.: South Fork of Tish-Tang-a-Tang Creek east of Hoopa, *Norris & Whittemore* 52413; Inyo Co.: Treasure Lake, John Muir Wilderness, Inyo National Forest, *Norris* 71529; Siskiyou Co.: South Sugar Lake, Klamath National Forest, *Norris & McGrew* 45644; Tulare Co.: Forest Road 14S11 near bridge crossing of Big Meadows Creek, Sequoia National Forest, *Shevock & York* 13677; Tuolumne Co.: near Olmstead Point, Yosemite National Park, *Kellman* 504 (CAS).

***Brachythecium albicans* (Hedwig) Bruch & W.**

**P. Schimper** [Brachytheciaceae]

**Literature:** Bradshaw 1926; Flowers 1973; Harthill et al. 1979; Holmberg 1969; Howe 1896; Ireland 1982; Kellman 2003; Koch 1950a, 1951e,

1958; Koch and Ikenberry 1954; Lawton 1971; McCleary 1972; McGrew 1976; Showers 1982; Spjut 1971; Strid 1974; Thomson and Ketchledge 1958; Toren 1977; Whittemore and Sommers 1999; Yurky 1995.

**Illustrations:** Abramov and Volkova 1998; Flowers 1973; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Fresno Co.: Grizzly Falls along Highway 180, South Fork Kings River, Sequoia National Forest, *Shevock* 12438; Lake Co.: Upper Nye Camp Site just north of Snow Mountain Wilderness boundary, Mendocino National Forest, *Shevock, Bourell, & Toren* 15841; San Mateo Co.: Big Canyon Park at Brittan Avenue just east of Crestview, San Carlos, *Whittemore* 4295 (UC); Trinity Co.: Hall City Caves east of Wildwood, Shasta-Trinity National Forest, *Norris* 71687.

***Brachythecium asperimum* (C. Müller Hal.)**

**Sullivant** [Brachytheciaceae]

**Literature:** Flowers 1973; Holmberg 1969; Jamieson 1969; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Shevock and Toren 2001; Spjut 1971; Toren 1977. As *Brachythecium washingtonianum* Crum 1957; Koch 1950a, 1958; Koch and Ikenberry 1954. As *Hypnum asperimum* Watson 1880. As *Hypnum vallium* Lesquereux 1868.

**Illustrations:** Flowers 1973; Lawton 1971; Robinson 1962.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Fresno Co.: Cedar Grove at Cedar Creek, Kings Canyon National Park, *Shevock* 13764; Humboldt Co.: Highway 299 east of Arcata, *Norris* 55082; San Francisco Co.: Chain of Lakes, Golden Gate Park, San Francisco, *Shevock* 19163; Santa Cruz Co.: Big Basin State Park, *Schofield* 6357 (CAN) [determined by Crum]; Tulare Co.: north base of Slate Mountain, Sequoia National Forest, *Shevock* 15661.

***Brachythecium bolanderi* (Lesquereux) A.**

**Jaeger** [Brachytheciaceae]

**Literature:** Harthill et al. 1979; Howe 1896; Kellman 2003; Kingman 1912; Koch and Ikenberry 1954; Lawton 1971; Long 1978; McGrew 1976; Showers 1982; Toren 1977. As *Hypnum bolanderi* Lawton 1965b; Lesquereux 1868; Watson 1880.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, CW, MP, NW, SN.

**Selected specimens:** San Luis Obispo Co.: Queen Bee Campground about 1 mile from La Panza Summit, *Norris* 55184; Santa Cruz Co.: Fall Creek, Henry Cowell Redwoods State Park, *Kellman* 661 (CAS); Shasta Co.: Pit River at Potem Falls northwest of Round Mountain, *Norris* 76324; Siskiyou Co.: shores of Castle Lake southwest of Shasta City, Shasta-Trinity National Forest, *Norris* 99777, Trail Gulch Lake west of Callahan, Klamath National Forest, *Norris* 102544 and 1 mile west of Elk



Lick, Klamath National Forest, *Norris* 23206; Sonoma Co.: Duran County Park near Bodega Marine Laboratory, *Norris* 103496; Tulare Co.: slopes above Oriole Lake, Sequoia National Park, *Shevock* 17634.

**\**Brachythecium calcareum* Kindberg**  
[Brachytheciaceae]

**Illustrations:** Crum and Anderson 1981.

**Geographic subdivisions:** NW.

**Selected specimens:** Siskiyou Co.: Forest Road 40S01 along Jaynes Creek to headwaters, Klamath National Forest, *Norris* 48655 and Bear Creek between junction with Elk and Snowshoe Creek, *Norris* 24166.

***Brachythecium collinum* (Schleicher ex C. Müller Hal.) Bruch & W. P. Schimper**  
[Brachytheciaceae]

**Literature:** Flowers 1973; Harthill et al. 1979; Holmberg 1969; Howe 1896; Koch 1950a, 1951e, 1958; Lawton 1971; Long 1978; McGrew 1976; Showers 1982; Spjut 1971; Strid 1974. As *Hypnum collinum* & *H. hillebrandi* Lesquereux 1868; Watson 1880.

**Illustrations:** Flowers 1973; Ignatov 1998; Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** DMoj, NW, SN, SNE, SW.

**Selected specimens:** Fresno Co.: north face of Spanish Mountain, John Muir Wilderness, Sierra National Forest, *Shevock & York* 12421; Inyo Co.: slopes of Rogers Peak, Death Valley National Park, *Shevock, York, & Davis* 21367; Lake Co.: Summit Springs Trail, Snow Mountain Wilderness, Mendocino National Forest, *Toren & Dearing* 7464 (CAS); San Bernardino Co.: Dollar Lake Trail, San Gorgonio Wilderness, San Bernardino National Forest, *Harpel* 2188 (pers. herb.); Tuolumne Co.: White Wolf, Yosemite National Park, *Kellman* 499 (CAS).

***Brachythecium erythrorrhizon* Bruch & W. P. Schimper** [Brachytheciaceae]

**Literature:** Jamieson 1969; Koch 1950a, 1951e; McGrew 1976; Spjut 1971.

**Illustrations:** Ignatov 1998; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Alpine Co.: Highway 88 at Hope Valley, Toiyabe National Forest, *Norris* 48499; Fresno Co.: Smith Meadows, Sierra National Forest, *Shevock et al.* 17458; Mariposa Co.: Summit Road two miles north of Fish Camp, Sierra National Forest, *Norris* 85360; Santa Barbara Co.: Bates Canyon, Cole Springs Campground, *Norris* 55352; Siskiyou Co.: upper Abbott's Cabin at Big Meadow, Marble Mountain Wilderness, Klamath National Forest, *Spjut* 1521 & 1523 (UC) and Big Boulder Lake west of Carrville, Klamath National Forest, *Norris & Streiman* 74844; Tehama Co.:

Tomhead Gulch, Shasta-Trinity National Forest, *Norris* 56906.

***Brachythecium fendleri* (Sullivant) A. Jaeger**  
[Brachytheciaceae]

**Literature:** Lawton 1965b.

**Illustrations:** Flowers 1973; Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** DMoj, NW, SN, SNE, SW.

**Selected specimens:** Kern Co.: Piute Mountain Road, BLM Piute Cypress Natural Area, Piute Mountains, *Shevock* 12493; Fresno Co.: Stump Springs Road near Aspen Creek, Sierra National Forest, *Norris & Shevock* 100114; Inyo Co.: slope of Rogers Peak near Hummingbird Spring, Death Valley National Park, *Shevock, York, & Davis* 21364; Mariposa Co.: Crane Flat Meadow, Yosemite National Park, *Kellman* 545 (CAS); Riverside Co.: road to Dark Canyon, San Bernardino National Forest, *Harpel* 75 (pers. herb.); Siskiyou Co.: Sugar Creek at Sugar Lake west of Callahan, Klamath National Forest, *Norris* 57302; Tulare Co.: trail to Lake South America, Sequoia National Park, *Laeger* 175 (CAS) and Moro Rock, *Shevock, Lin, & Chen* 17762; Tuolumne Co.: Haring Creek Reservoir, Stanislaus National Forest, *Norris* 100407.

***Brachythecium frigidum* (C. Müller Hal.) Bescherelle** [Brachytheciaceae]

**Literature:** Bourell 1981; Harpel 1980a; Harthill et al. 1979; Kellman 2003; Lawton 1971; Long 1978; Mishler 1978; Showers 1982; Strid 1974. As *Brachythecium lamprochryseum* Bradshaw 1926; Cooke 1941; Flowers 1973; Howe 1897; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; McGrew 1976; Spjut 1971.

**Illustrations:** Flowers 1973; Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** CaR, CW, NW, SN, SNE, SW.

**Selected specimens:** Fresno Co.: Smith Meadow, Sierra National Forest, *Shevock & York* 13588 (determined by Ochrya); Riverside Co.: Deep Springs Trail, San Jacinto Mountains, San Bernardino National Forest, *Harpel* 549 (pers. herb.); Siskiyou Co.: Gumboot Creek, South Fork Sacramento River, Shasta-Trinity National Forest, *Norris* 99797; Tehama Co.: South Fork Beegum Creek, Shasta-Trinity National Forest, *Shevock & Ertter* 19414.

***Brachythecium holzingeri* (Grout) Grout**  
[Brachytheciaceae]

**Literature:** McGrew 1976. We were unable to locate the McGrew packet cited in her thesis, but we determined another California collection to represent this species.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CW.

**Selected specimens:** Santa Cruz Co.: Bridge Creek Trail, Forest of Nisene Marks State Park, *Kellman* 2641 (CAS).



**\**Brachythecium hylotapetum* N. Higinbotham & B. Higinbotham** [Brachytheciaceae]

**Illustrations:** Higinbotham and Higinbotham 1958; Lawton 1971.

**Geographic subdivisions:** NW, SNE.

**Selected specimens:** Humboldt Co.: near Coyote Peak on Bald Hills Road, *Norris* 22346; Mono Co.: Lower Rock Creek Trail, Inyo National Forest, *Nelson* 555 (UC).

***Brachythecium leibergii* Grout** [Brachytheciaceae]

**Literature:** Lawton 1965b; McGrew 1976; Showers 1982; Spjut 1971.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Del Norte Co.: Bear Basin Creek north of Bear Basin Butte, *Norris* 68862; Butte Co.: French Creek north of Brush Creek Gold Camp, Plumas National Forest, *Norris* 99485; Inyo Co.: above Chocolate Lake west of Big Pine, John Muir Wilderness, Inyo National Forest, *Norris* 46889; Siskiyou Co.: Granite Creek between Tickner Creek and Blue Granite Lake, *Norris* 52300; Trinity Co.: Hall City Caves east of Wildwood, Shasta-Trinity National Forest, *Norris* 71680 and trail above Bridge Camp west of Clair Engle Lake, *Norris* 68781; Tulare Co.: Ranger Lakes, Kings Canyon National Park, *Norris* 46549 and Summit Trail at Jacobsen Meadow, Golden Trout Wilderness, Sequoia National Forest, *Laeger* 396 (CAS).

**\**Brachythecium nelsonii* Grout**

[Brachytheciaceae]

**Illustrations:** Flowers 1973; Lawton 1971.

**Geographic subdivisions:** SN.

**Selected specimens:** Tulare Co.: South Fork Tule River at Crawford Road, Sequoia National Forest, *Laeger* 345 (CAS).

**\**Brachythecium oedipodium* (Mitten) A. Jaeger**

[Brachytheciaceae]

**Illustrations:** Ignatov 1998; Piippo 1983.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Amador Co.: Tiger Reservoir Road above Panther Creek Bridge, *Norris* 103335; Del Norte Co.: Coastal Trail between False Klamath Cove and Requa, Redwood National Park, *Norris* 70363; Fresno Co.: road between Eshom Creek Campground and Redwood Mountain, Whitakers Forest, *Shevock* 18431; Mendocino Co.: Ant Ridge off of Forest Road 25N18, Mendocino National Forest, *Shevock* & *Isle* 15915; Placer Co.: Dutch Flat Reservoir about 2 miles from town of Dutch Flat, *Norris* 101624; Siskiyou Co.: Highway 96 at Ash Creek Bridge, Klamath River, Klamath National Forest, *Norris* 105195.

***Brachythecium plumosum* (Hedwig) Bruch & W. P. Schimper** [Brachytheciaceae]

**Literature:** Lawton 1971.

**Illustrations:** Abramov and Volkova 1998; Buck 1998; Ignatov 1998; Ignatov and Koponen 1996;

Ireland 1982; Lawton 1971; Robinson 1962; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Del Norte Co.: Sanger Lake along Forest Road 4803 east of O'Brien, Siskiyou National Forest, *Norris* 70816; El Dorado Co.: near Sayles Canyon Trailhead, Eldorado National Forest, *Norris* 70990; Fresno Co.: east of Idaho Lake, Kaiser Wilderness, Sierra National Forest, *Shevock* 21011; Nevada Co.: Castle Valley north of Boreal Ski Area, Tahoe National Forest, *Norris* 86845; Siskiyou Co.: between Bear Cabin and the Elk Creek Trail along Bear Creek, Marble Mountain Wilderness, Klamath National Forest, *Spjut* 1276 (UC); Trinity Co.: Corral Bottoms Road about 1.5 miles from Big Bar, Shasta-Trinity National Forest, *Norris* 21037; Tulare Co.: Crawford Road, western slope of Slate Mountain, Sequoia National Forest, *Shevock* 18431.

***Brachythecium populeum* (Hedwig) Bruch & W. P. Schimper** [Brachytheciaceae]

**Literature:** As *Hypnum populeum* Lesquereux 1868; Watson 1880.

**Illustrations:** Abramov and Volkova 1998; Ignatov 1998; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Fresno Co.: Deer Cove Creek along South Fork Kings River, Sequoia National Forest, *Shevock* 12455; Shasta Co.: Squaw Valley Creek southwest of McCloud, Shasta-Trinity National Forest, *Norris* & *Hillyard* 104290; Siskiyou Co.: junction of South Fork Sacramento River at Soapstone Creek, Shasta-Trinity National Forest, *Norris* 102473; Trinity Co.: Big Creek east of China Peak, *Norris* 76832.

**\**Brachythecium reflexum* (Starke in Weber & D. Mohr) Bruch & W. P. Schimper**

[Brachytheciaceae]

**Illustrations:** Ignatov 1998; Lawton 1971; Smith 1978; Williams 1935. As *Brachythecium bestii* Piippo 1983.

**Geographic subdivisions:** NW, SNE.

**Selected specimens:** Del Norte Co.: Highway 199 about 8.2 miles east of Highway 101, *Gist* 155 (UC); Inyo Co.: near Dragon Peak above Onion Valley, John Muir Wilderness, Inyo National Forest, *Norris* 46708; Lake Co.: Mt. Sanhedrin above Mill Creek, Mendocino National Forest, *Toren* 7140 (CAS) [determined by McFarland].

***Brachythecium rivulare* Bruch & W. P. Schimper** [Brachytheciaceae]

**Literature:** Holmberg 1969; Moxley 1928; Spjut 1971.

**Illustrations:** Abramov and Volkova 1998; Buck 1998; Flowers 1973; Ignatov 1998; Ignatov and Koponen 1996; Ireland 1982; Koponen et al. 1995; Lawton 1971; Robinson 1962; Smith 1978.

**Geographic subdivisions:** CaR, MP, NW, SN, SNE.

**Selected specimens:** Humboldt Co.: Forest Road 10N02 at head of Mill Creek, *Norris* 70585; Inyo Co.: Goodale Creek at BLM Goodale Campground, *Shevock & Norris* 16854; Modoc Co.: Cottonwood Flat Campground, Modoc National Forest, *Norris* 68523a; Mono Co.: Lundy Lakes Trail along Mill Creek below Lake Helen, Inyo National Forest, *Norris* 78869; Placer Co.: road to Bowman Lake about 2 miles from Highway 20, Tahoe National Forest, *Norris* 77005; Tulare Co.: Nobe Young Creek, Sequoia National Forest, *Laeger* 12 (CAS) and Oriole Lake, Sequoia National Park, *Norris*, *Shevock*, & *Barahona* 87554.

***Brachythecium rutabulum* (Hedwig) Bruch & W. P. Schimper** [Brachytheciaceae]

**Literature:** Ireland 1982; Kellman 2003; Kingman 1912; McGrew 1976; Shevock and Toren 2001.

**Illustrations:** Abramov and Volkova 1998; Ignatov 1998; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SNE.

**Selected specimens:** Contra Costa Co.: Mitchell Canyon, Mt. Diablo State Park, *Norris* 100609; Fresno Co.: Redwood Creek above Highway 180, Monarch Wilderness, Sequoia National Forest, *Shevock & York* 12681 (determined by Ochyra); Inyo Co.: South Fork Bishop Creek, Inyo National Forest, *Shevock* 12549; Lake Co.: Library Park, Lakeport, *Toren* 7665 (CAS) [determined by McFarland]; Modoc Co.: Deep Creek, 2 miles west of Cederville-Eagleville Road, *Norris* 18728; Santa Cruz Co.: Scotts Valley, *Kellman* 1122 (CAS); Sierra Co.: Highway 49 at Chapman Creek, Tahoe National Forest, *Kellman* 261 (CAS); Tulare Co.: Freeman Grove, Lloyd Meadows Basin, Sequoia National Forest, *Shevock* 3899 and General's Highway near Ash Mountain Headquarters, Sequoia National Park, *Shevock* 16747.

***Brachythecium salebrosum* (Weber & D. Mohr) Bruch & W. P. Schimper** [Brachytheciaceae]

**Literature:** Holmberg 1969; Ireland 1982; Shevock and Toren 2001; Spjut 1971.

**Illustrations:** Ignatov 1998; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, DMoj, NW, SN, SNE.

**Selected specimens:** Fresno Co.: Taboose Pass Trail, headwaters of South Fork Kings River, Kings Canyon National Park, *Shevock* 13855; Inyo Co.: South Fork Hanaupah Canyon, east base of Telescope Peak, Death Valley National Park, *Shevock & York* 21340, 21345 & 21357; Mono Co.: Mormon Meadow in Cinnabar Canyon off of Highway 270, 3 miles east of Highway 395 on road to Bodie, *Shevock* 15337; Shasta Co.: headwaters of Nelson Creek, Lassen National Forest, *Harpel* 16384 (pers. herb.); Siskiyou Co.: Sugar Creek, Klamath National Forest, *McGrew* 87 (UC).

***Brachythecium starkei* (Bridel) Bruch & W. P. Schimper** [Brachytheciaceae]

**Literature:** Kellman 2003; McGrew 1976; Spjut 1971.

**Illustrations:** Flowers 1973; Ignatov 1998; Ireland 1982; Lawton 1971; Piippo 1983.

**Geographic subdivisions:** CW, NW, SN.

**Selected specimens:** Del Norte Co.: about 0.5 mile north of Lake Earl, *Norris* 70739; Fresno Co.: Mist Falls Trail about 3 miles from Cedar Grove, South Fork Kings River, Kings Canyon National Park, *Shevock & York* 14493 and lower end Fence Meadow, Sierra National Forest, *Laeger* 354 (CAS, UC); Humboldt Co.: College Cove about 0.5 mile from Trinidad, *Norris* 47760; San Bernardino Co.: Highway 18 at Castle Rock Trail, Big Bear Lake, San Bernardino National Forest, *Shevock* 24087; Santa Cruz Co.: City of Santa Cruz, *Kellman* 1830 (CAS).

***Brachythecium velutinum* (Hedwig) Bruch & W. P. Schimper** [Brachytheciaceae]

**Literature:** Bourell 1981; Harpel 1980a; Harthill et al. 1979; Howe 1897; Ireland 1982; Kellman 2003; Lawton 1965b, 1971; Long 1978; McGrew 1976; Mishler 1978; Showers 1982; Sigal 1975; Spjut 1971; Toren 1977; Yurky 1990, 1995.

**Illustrations:** Abramov and Volkova 1998; Ignatov 1998; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SN, SNE, SW.

**Selected specimens:** Inyo Co.: South Fork Bishop Creek, 4.2 miles south of Highway 168 along South Fork Road, Inyo National Forest, *Shevock* 12544; Los Angeles Co.: Mt. Baldy area, San Gabriel Mountains, Angeles National Forest, *Harpel* 1328 (pers. herb.); Plumas Co.: Highway 89 about 3 miles south of Crescent Mills, *Norris* 69938; Riverside Co.: Devils Slide Trail, San Jacinto Wilderness, San Bernardino National Forest, *Shevock*, *Kramer*, *Hall*, & *Ward* 24085; Siskiyou Co.: Jackson Creek at Callahan, Klamath National Forest, *Norris* 70497; Trinity Co.: White Rock Road about 3 miles south of Highway 36, *Norris* 56100; Tulare Co.: Highway 190 at Cedar Slope, Sequoia National Forest, *Shevock* 14221.

***Brachythecium venustum* De Notaris** [Brachytheciaceae]

**Literature:** As *Brachythecium petrophilum* Koch 1950a, 1951e; Koch and Ikenberry 1954. As *Brachythecium velutinum* var. *venustum* Holmberg 1969; Lawton 1965b, 1971.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, SN.

**Selected specimens:** Del Norte Co.: Bear Creek north of Bear Basin Butte, *Norris* 68887; Fresno Co.: Reese Creek, Forest Road 10S36, Sierra National Forest, *Shevock & Bourell* 13984; Plumas Co.: Chips Creek at Highway 70 west of Belden, *Norris* 70005; Tulare Co.: Bear Creek along road to Mountain Home State Forest, Sequoia National



Forest, *Shevock* 3959 and Oriole Lake, Sequoia National Park, *Norris*, *Shevock*, & *Barahona* 87527.

***Bruchia bolanderi* Lesquereux** [Bruchiaceae]

**Literature:** Christy and Wagner 1996; Koch 1950a; Lesquereux 1868; Lesquereux and James 1884; Rushing 1986; Showers 1982; Watson 1880.

**Illustrations:** Grout 1928–1940; Rushing 1986.

**Geographic subdivisions:** CaR, SN.

**Selected specimens:** Nevada Co.: Castle Valley, Tahoe National Forest, *Norris* 86857; Plumas Co.: Quincy-LaPorte Road at Onion Valley, Plumas National Forest, *Norris* 83175; Tehama Co.: near southeast entrance station of Lassen Volcanic National Park, *Showers* 3578 (UC); Tulare Co.: Cold Spring below Portugese Pass, Greenhorn Mountains, Sequoia National Forest, *Shevock* 14313; Tuolumne Co.: near Piute Meadow, Emigrant Wilderness, Stanislaus National Forest, *Norris* 77107 and between Tuolumne Meadows and Tioga Pass, Yosemite National Park, *Norris* 100360.

***Bruchia flexuosa* (Schwägrichen) C. Müller**

**Hal.** [Bruchiaceae]

**Literature:** Kellman 2003; Rushing 1986; Rushing and Christy 1984.

**Illustrations:** Crum and Anderson 1981; Rushing 1986.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Mendocino Co.: near Willits, *Branscomb* 176 (NY); Santa Cruz Co.: meadow area on north side of Empire Grade, milepost 13, *Kellman* 1456 (CAS) and “four corners” area of UC Santa Cruz Campus, *Kellman* 1459 & 1463 (CAS) [confirmed by Rushing].

***Bryoerythrophyllum columbianum* (F. J.**

**Hermann & E. Lawton) Zander** [Pottiaceae]

**Literature:** Zander 1979a. As *Didymodon columbianus* Strid 1974.

**Illustrations:** Hermann and Lawton 1968; Lewis 1981.

**Geographic subdivisions:** CaR, NW.

**Selected specimens:** Colusa Co.: Salt Creek near Fox Canyon, Highway 20 about 8.5 miles east of Lake County line, *Norris* 67518; Lake Co.: Manning Creek, Highway 175 about 4 miles west of Lakeport, *Toren*, *Bourell*, *Dearing*, & *Shevock* 6999 (BUF, CAS) [confirmed by Zander]; Shasta Co.: Liberty Gulch, Whiskeytown National Recreation Area, *Hillyard* 499 (UC).

***Bryoerythrophyllum recurvirostrum* (Hedwig)**

**Chen** [Pottiaceae]

**Literature:** Flowers 1973; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; McCleary 1972; Showers 1982; Spjut 1971; Strid 1974; Zander 1978b. As *Didymodon recurvirostris* Koch 1950a; Lawton 1971. As *Didymodon rubellus* Lesquereux 1868; Watson 1880.

**Illustrations:** Allen 2002; Crum and Anderson

1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** CaR, NW, SN, SNE, SW.

**Selected specimens:** Mono Co.: Convict Lake Trail about 1.5 miles above Convict Lake, John Muir Wilderness, Inyo National Forest, *Norris* 71344; Riverside Co.: North Fork San Jacinto River, San Jacinto State Park, *Harpel* 1141 (pers. herb.); Siskiyou Co.: Jaynes Creek northwest of Klamath River, *Norris* 48695; Tulare Co.: Rock Creek Canyon, Kern River, Sequoia National Park, *J.T. Howell s.n.* (CAS, NY) and Kern Plateau, slopes of Fish Creek near Rodeo Flat, Sequoia National Forest, *Shevock* 18407 (determined by Zander); Tuolumne Co.: Douglas Flat, Dardanelles, *R.J. Rodin* 6176 (UC).

***Bryolawtonia vancouveriensis* (Kindberg) Norris & Enroth** [Neckeraceae]

**Literature:** Kellman 2003; Norris and Enroth 1990; Shevock and Toren 2001. As *Bestia holzingeri* Koch 1950a; Koch and Ikenberry 1954. As *Bestia occidentalis* Koch 1950a. As *Bestia vancouveriensis* Harthill et al. 1979; Holmberg 1969; Jamieson 1969; Lawton 1971; McCleary 1972; Yurky 1990. As *Thamnum holzingeri* Howe 1896. As *Porotrichum vancouveriense* Crum 1987; Yurky 1995.

**Illustrations:** Lawton 1971. As *Thamnum holzingeri* Renauld and Cardot 1894.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Alameda Co.: Strawberry Canyon about 0.5 mile above UC Botanic Garden, *Norris* 82610; Del Norte Co.: Damnation Creek Trail, Del Norte Redwoods State Park, *Norris* & *Taranto* 10978 & 10980; Humboldt Co.: Cathedral Trees Trail, Prairie Creek Redwoods State Park, *Jamieson* 872 (UC); Lake Co.: Grizzly Canyon between Elk Mountain and Horse Mountain, Mendocino National Forest, *Toren* 7685 (CAS); Marin Co.: trail near Mud Lake, Point Reyes National Seashore, *Norris* 71809; Mendocino Co.: near Ranger Station, Sinkyone Wilderness State Park, *Norris* 71753 and North Coast Range Preserve about 11 km north of Branscomb, *Bourell* 1610 (CAS) [determined by Toren]; San Francisco Co.: Golden Heights Park, *Shevock* 19202 & *Toren* 7943 (CAS); Santa Cruz Co.: Spring Trail, Pogonip Park near UC Santa Cruz, *Kellman* 316 (UC).

***Bryum algovicum* Sendtner ex C. Müller Hal.**

[Bryaceae]

**Literature:** Crum and Anderson 1981; Spence 1988a. As *Bryum angustirete* Flowers 1973; Harthill et al. 1979; Koch 1950a, 1958; Lawton 1971. As *Bryum pendulum* Koch 1950a.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Smith 1978; Zolotov 2000.

**Geographic subdivisions:** NW, SN, SNE.

**Selected specimens:** Kern Co.: Sand Canyon about 3 miles north of Highway 58, southern Piute Mountains, *Hare* 99 (CAS); Mono Co.: near Cottonwood



Creek, White Mountains, Inyo National Forest, *Mitchell* 63 (UC); Siskiyou Co.: South Fork of Salmon River near junction with West Fork, *Norris* 10109.

***Bryum alpinum* Hudson ex Withering**  
[Bryaceae]

**Literature:** Coville 1893; Crum and Anderson 1981; Koch 1950a, 1958; Lawton 1971; McGrew 1976; Spence 1988a.

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Lawton 1971; Sharp et al. 1994; Smith 1978; Zolotov 2000.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Fresno Co.: Baxter Lake, Kings Canyon National Park, *Shevock & York* 16547; Humboldt Co.: Tish-Tang-a-Tang Creek near Grogans Hole, *Norris* 47836 (determined by Spence); Tulare Co.: between Redwood Crossing and Long Meadow, Wishon Fork Tule River, Golden Trout Wilderness, Sequoia National Forest, *Shevock* 10609 (determined by Spence); Tuolumne Co.: Canyon of the South Fork Stanislaus River, *J.T. Howell s.n.* (CAS) [determined by Andrews].

***Bryum amblyodon* C. Müller Hal.** [Bryaceae]

**Literature:** Spence 1988a. As *Bryum inclinatum* Lesquereux 1868; Watson 1880. As *Bryum stenotrichum* Crum and Anderson 1981; Harthill et al. 1979; Koch 1950a, 1958; Lawton 1971; McGrew 1976; Strid 1974.

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Lawton 1971; Ochrya 1998a; Zolotov 2000.

**Geographic subdivisions:** NW, SN, SW.

**Selected specimens:** Fresno Co.: below Kearsarge Pass, Kings Canyon National Park, *Shevock* 14328; Humboldt Co.: Aikens Creek at road to Fish Lake, *Norris* 56387; Riverside Co.: Highway 243 near milepost 25.10, San Jacinto Mountains, San Bernardino National Forest, *Harpel* 1819 (pers. herb.); Sierra Co.: Chapman Creek Campground, Tahoe National Forest, *Tavares* 585 (UC) [determined by Andrews]; Tehama Co.: Beegum Basin north of Yolla Bolly Mountain, Shasta-Trinity National Forest, *Norris* 57034.

***Bryum argenteum* Hedwig** [Bryaceae]

**Literature:** Bourell 1981; Bradshaw 1926; Brandege 1891; Crum and Anderson 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Kellman 2003; Kingman 1912; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Long 1978; Mishler 1978; Shevock and Toren 2001; Showers 1982; Spence 1988a; Steere et al. 1954; Strid 1974; Toren 1977; Watson 1880; Whittemore and Sommers 1999; Yurky 1990, 1995; Zolotov 2000.

**Illustrations:** Abramov and Volkova 1998; Allen 2002; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton

1971; Ochrya 1998a; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, DMoj, DSon, GV, MP, NW, SN, SNE, SW.

**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris* 87175; Kern Co.: Highway 178, lower Kern River Canyon about 3 miles east of canyon entrance, Sequoia National Forest, *Shevock* 9131; Riverside Co.: between Key Ranch and Barker Dam, Joshua Tree National Park, *Norris* 50502; San Luis Obispo Co.: about 1 mile west of Poso Summit, *Norris* 55205; Shasta Co.: Highway 299 about 2 miles east of Montgomery Creek, *Norris* 47538.

**\**Bryum badium* (Bridel) W. P. Schimper**  
[Bryaceae]

**Illustrations:** Nyholm 1987–1998.

**Geographic subdivisions:** DMoj.

**Selected specimens:** Inyo Co.: Eagle Spring, Telescope Peak, Death Valley National Park, *York* 2680 (CAS) [determined by Spence].

***Bryum barnesii* Wood in W. P. Schimper**  
[Bryaceae]

**Literature:** Kellman 2003; Vanderpoorten and Zartman 2002.

**Illustrations:** Vanderpoorten and Zartman 2002; Wilczek and Demaret 1976.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Humboldt Co.: Highway 36 about 2 miles east of Carlotta, *Norris* 48200 (determined by Vanderpoorten); Santa Cruz Co.: Monterey Bay west of Capitola Wharf, *Kellman* 1195 (CAS); Shasta Co.: Highway at Shasta College north of Redding, *Norris* 57779 & 57783 (determined by Vanderpoorten), about 11 miles east of Anderson to Shingleton Road, *Norris* 23731 (determined by Vanderpoorten); Tulare Co.: Clough Cave, Sequoia National Park, *Norris & Shevock* 92744 (determined by Vanderpoorten).

***Bryum bicolor* Dickson** [Bryaceae]

**Literature:** Bourell 1981; Crum and Anderson 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Jamieson 1969; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Long 1978; McCleary 1972; Mishler 1978; Shevock and Toren 2001; Steere 1954; Toren 1977; Yurky 1990, 1995. As *Bryum californicum* Brandege 1891; Lesquereux 1868; Lesquereux and James 1884; Millsbaugh and Nuttall 1923; Sayre 1940; Sullivant 1856.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Lawton 1971; Wilczek and Demaret 1976; Zolotov 2000. As *Bryum dichotomum* Spence 1988a.

**Geographic subdivisions:** CaR, CW, MP, NW, SN.

**Selected specimens:** Alpine Co.: Highway 4 about 11 miles west of Woodfords, *Koch* 1804 (UC); Contra Costa Co.: Gibraltar Rock toward summit of Mt. Diablo, *Koch* 1566 (UC); Humboldt Co.: Way County Park, *Norris* 25297 (determined by

Spence); San Francisco Co.: Lafayette Park, San Francisco, *Shevock* 19234; Santa Clara Co.: San Francisquito Creek, Palo Alto, *Drouet* 1333 (UC) [determined by Vanderpoorten]; Shasta Co.: Highway 299 on north side of Haynes Flat about 3 miles west of Burney, *Norris* 68547 (determined by Spence); Tehama Co.: Highway 99 about 3 miles south of Vina, *Norris* 48226 (determined by Vanderpoorten); Tulare Co.: road 1.2 miles above Buckeye Campground, trailhead for Middle Fork Kaweah River Trail, Sequoia National Park, *Shevock* 15207 (determined by Vanderpoorten).

***Bryum binum* (Schreber) Turner** [Bryaceae]

**Literature:** Coville 1893; Lesquereux 1868; Spjut 1971.

**Illustrations:** Abramov and Volkova 1998; Ignatov and Ignatova 2003; Nyholm 1987–1998; Podpěra 1973.

**Geographic subdivisions:** NW.

**Selected specimens:** Humboldt Co.: road to Petrolia about 1.5 mile east of ocean shore, *Norris* 76861.

***Bryum blindii* Bruch & W. P. Schimper**  
[Bryaceae]

**Literature:** McGrew 1976; Shaw 1981e; Spence 1988a.

**Illustrations:** Crum and Anderson 1981; Ireland 1982; Lawton 1971.

**Geographic subdivisions:** GV.

**Selected specimens:** Butte Co.: Thermalito near Oroville Airport, Thermalito Afterbay, *Ahart* 10024, 10025 (UC); Solano Co.: Jepson Prairie Ecological Reserve, *Norris* 101397.

***Bryum caespiticium* Hedwig** [Bryaceae]

**Literature:** Bourell 1981; Cooke 1941; Coville 1893; Crum and Anderson 1981; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Jamieson 1969; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Long 1978; McGrew 1976; Mishler 1978; Spence 1988a; Spjut 1971; Strid 1974; Toren 1977.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SNE.

**Selected specimens:** Inyo Co.: South Lake Road, 0.7 mile below South Lake, Inyo National Forest, *Shevock* 12539; Lake Co.: Hull Mountain, Mendocino National Forest, *Toren* 857 (UC); Monterey Co.: cemetery on Lockwood Road about 2 km east of Alamo Air Strip, Hunter-Liggett Military Reservation, *Norris* 87337; Placer Co.: near entrance to Squaw Valley, *Tavares & Noack* 628 (UC) [determined by Andrews]; Siskiyou Co.: near South Sanger Lake, *Norris & McGrew* 45628 and trail to Long Gulch southwest of Callahan, Klamath National Forest, *Norris* 74868.

***Bryum calobryoides* Spence** [Bryaceae]

**Literature:** Kellman 2003; Spence 1986, 1988a.

**Illustrations:** Spence 1986.

**Geographic subdivisions:** CaR, CW, NW, SN, SNE, SW.

**Selected specimens:** Butte Co.: Upper Bidwell Park between Big Chico Creek and Sycamore Creek, *Janeway* 6979 (UC); Kern Co.: Pine Tree Canyon, *Shevock, Ertter, & Hare* 17831 (determined by Spence); Mono Co.: Koenig Lake east of Sonora Pass, Toiyabe National Forest, *Norris* 57164; Santa Cruz Co.: Laurel Road at Highway 17, *Kellman* 2673 (CAS) [confirmed by Spence]; Siskiyou Co.: Terrace and Upper Cliff Lakes, *Norris* 52999; Tehama Co.: west face of North Yolla Bolly Mountain, Shasta-Trinity National Forest, *Norris* 57072; Trinity Co.: Packer's Peak, *Norris* 8973 (determined by Spence).

***Bryum canariense* Bridel** [Bryaceae]

**Literature:** Harthill et al. 1979; Holmberg 1969; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; McCleary 1972; McGrew 1976; Shevock and Toren 2001; Showers 1982; Spence 1988a; Spjut 1971; Steere 1954; Toren 1977; Whitemore and Sommers 1999; Yurky 1990, 1995. As *Bryum hendersonii* Howe 1896; Renauld and Thériot 1890. As *Bryum provinciale* Lesquereux and James 1884; Watson 1880. **Illustrations:** Allen 2002; Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** CW, DMoj, DSon, NW, SN, SNE.

**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris* 87206; Humboldt Co.: South Fork Tish-Tang-a-Tang Creek east of Hoopa, *Norris & Whitemore* 52404; Mono Co.: Mormon Meadow and Clearwater Creek, Highway 270 about 3 miles east of Highway 395 on road to Bodie, *Shevock* 15248; San Bernardino Co.: Coyote Canyon, Granite Mountains north of Highway 40 and east of Needles, Mojave National Preserve, *Norris* 87852; San Francisco Co.: Fort Winfield Scott, Presidio of San Francisco, *Shevock* 19369; Tulare Co.: end of County Road 348 near Clough Cave, South Fork Kaweah River, Sequoia National Park, *Shevock* 12998.

***Bryum capillare* Hedwig** [Bryaceae]

**Literature:** Bourell 1981; Bradshaw 1926; Crum and Anderson 1981; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Jamieson 1969; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Long 1978; McCleary 1972; McGrew 1976; Mishler 1978; Shevock and Toren 2001; Showers 1982; Sigal 1975; Smith 1970; Spence 1988a; Spjut 1971; Steere 1954; Steere et al. 1954; Strid 1974; Toren 1977; Watson 1880; Whitemore and Sommers 1999; Yurky 1990, 1995. As *Bryum sanguilentum* Cardot and Thériot 1904; Howe 1896. As *Bryum subdrepanocladum* Cardot and Thériot



1904. As *Bryum obconicum* Kingman 1912; Lesquereux 1868; Lesquereux and James 1884; Millspaugh and Nuttall 1923; Sayre 1940; Sullivant 1856. As *Bryum occidentale* Brandegees 1891; Lesquereux 1868; Lesquereux and James 1884; Sullivant 1856. As *Rosulabryum capillare* Kellman 2003.

**Illustrations:** Abramov and Volkova 1998; Allen 2002; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978; Syed 1973; Zolotov 2000.

**Geographic subdivisions:** CaR, CW, NW, SN, SNE.

**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris 87214*; El Dorado Co.: Traverse Creek Botanical Area about 2.5 air miles southeast of Georgetown, Eldorado National Forest, *Shevock 12247*; Monterey Co.: bluffs at the Pinnacles, Hunter Liggett Military Reservation, *Norris 87292*; Sonoma Co.: The Cedars north of Cazadero, *Ertter & Raiche 12864* (UC); Tulare Co.: General's Highway 0.6 mile west of Clover Creek, Sequoia National Park, *Shevock & Tseng 15757*.

***Bryum cyclophyllum* (Schwägrichen) Bruch & W. P. Schimper** [Bryaceae]

**Literature:** Spence 1988a. As *Bryum tortifolium* Koch 1951b; McGrew 1976.

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Zolotov 2000.

**Geographic subdivisions:** NW.

**Selected specimens:** Lake Co.: along Bartlett Springs Road, *J.W. Carmiggelt 50* (UC) and Oakwood Springs, BLM Cow Mountain Recreation Area, *Toren 6889* (CAS) [determined by Spence]; Tehama Co.: west face of North Yolla Bolly Mountain, Shasta-Trinity National Forest, *Norris 57062 & 57070*.

**\**Bryum elegans* Nees in Bridel** [Bryaceae]

**Illustrations:** Ignatov and Ignatova 2003; Smith 1978.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Lake Co.: canyon below Forest Road M-3 at Low Gap, Mendocino National Forest, *Toren, Dearing, & Shevock 7724* (CAS) [determined by Spence]; Nevada Co.: Forest Road 18 at Fall Creek between Bowman Lake and Highway 20, *Shevock, Ertter, & Morosco 15703* (determined by Muñoz; confirmed by Spence).

***Bryum erythroloma* (Kindberg) Syed** [Bryaceae]

**Literature:** Spence 1988a.

**Illustrations:** Allen 2002; Sharp et al. 1994; Syed 1973.

**Geographic subdivisions:** NW.

**Selected specimens:** Humboldt Co.: Redwood Valley Road about 0.65 mile from Highway 299, *Farr 93* (UC) and Johnson Prairie, *Norris 19039*; Lake

Co.: Tule Lake, Mt. Sanhedrin, Mendocino National Forest, *Toren & Dearing 7192* (CAS) [determined by Spence] and Mt. Konocti at Buckingham Bluffs above Clear Lake, *Shevock, Heise, Toren, & Harpel 20605*.

***Bryum flaccidum* Bridel** [Bryaceae]

**Literature:** Spence 1988a; Whittemore and Sommers 1999.

**Illustrations:** Syed 1973.

**Geographic subdivisions:** CaR, NW, MP, SN.

**Selected specimens:** El Dorado Co.: near Round Lake, Eldorado National Forest, *Norris 71160* (determined by Spence); Lake Co.: Hidden Valley north of Middletown, *Toren & Dearing 7577* (CAS) [determined by Spence]; Modoc Co.: west side of Goose Lake about 4 miles south of Oregon state line, *Norris 18722*; Siskiyou Co.: Soda Creek Road about 4 miles northeast of Highway 5 near Dunsmuir, Shasta-Trinity National Forest, *Norris 84809*; Trinity Co.: Big Canyon at Hayfork Creek, *Norris 56151*; Tulare Co.: below Paradise Ridge overlooking Middle Fork Kaweah River, Sequoia National Park, *Shevock 14632*.

***Bryum gemmascens* Kindberg** [Bryaceae]

**Literature:** Shevock and Toren 2001; Spence 1988a.

**Illustrations:** Syed 1973; Wilczek and Demaret 1976.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Fresno Co.: north-facing slope of Red Mountain southwest of Tollhouse, *York 1613* (CAS); Humboldt Co.: East Fork about 5 air miles north of Mad River, Six Rivers National Forest, *Norris 83904*; Lake Co.: Highway 53 about 1 mile south of Highway 20, *Norris 47656* (determined by Spence); San Francisco Co.: Bernal Heights Park, *Toren 7792* (CAS); Tehama Co.: Battle Creek along Highway 36 at milepost 75, *Norris 52571* (determined by Spence); Trinity Co.: Stuart Gap Trailhead, *Norris 56853* (determined by Spence).

***Bryum gemmiferum* R. Wilczek & Demaret** [Bryaceae]

**Literature:** Blockeel et al. 2001; Kellman 2003; Vanderpoorten and Zartman 2002.

**Illustrations:** Smith 1978; Vanderpoorten and Zartman 2002; Wilczek and Demaret 1976.

**Geographic subdivisions:** CW.

**Selected specimens:** San Mateo Co.: Montara State Beach, *Vanderpoorten 4782* (DUKE); Santa Cruz Co.: Scotts Valley Drive, Scotts Valley, *Kellman 1178* (CAS).

***Bryum gemmilucens* R. Wilczek & Demaret** [Bryaceae]

**Literature:** Kellman 2003; Shevock and Toren 2001; Spence 1988a.

**Illustrations:** Smith 1978.

**Geographic subdivisions:** CaR, CW, NW.



**Selected specimens:** Butte Co.: levee of Feather River north of Gridley, *Norris* 52542 (determined by Vanderpoorten); Marin Co.: South Novato, *Jenkinson s.n.* (UC) [determined by Vanderpoorten]; Napa Co.: Crane Park, City of St. Helena, *Norris* 48240 (determined by Spence; Vanderpoorten); Lake Co.: Chalk Mountain, North Fork Cache Creek, *Toren & Dearing* 7323 (CAS) and town of Nice, east shore of Clear Lake, *Toren* 7710 (CAS) [determined by Spence]; San Francisco Co.: Aqua Vista Park, Central Basin, San Francisco, *Shevock* 18993; Shasta Co.: Sacramento River Trail northeast of Redding, *Norris* 105297; Siskiyou Co.: Klamath River at Ash Creek Bridge, Klamath National Forest, *Norris & Hillyard* 105241; Sonoma Co.: at summit ridge behind Armstrong Park, *Koch* 3532 (UC) [determined by Vanderpoorten].

***Bryum gemmiparum* De Notaris** [Bryaceae]

**Literature:** Crum and Anderson 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Long 1978; Mishler 1978; Spence 1988a; Spjut 1971; Strid 1974; Toren 1977.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, CW, DMoj, DSon, MP, NW, SN, SW.

**Selected specimens:** Del Norte Co.: Smith River about 10 miles east of Gasquet on Highway 199, *Norris* 8787; Lake Co.: Soda Creek near Lake Pillsbury, Mendocino National Forest, *Toren* 5131 (CAS); Modoc Co.: west side Goose Lake about 4 miles south of Oregon state line, *Norris* 18720; Plumas Co.: Highway 70 near Belden, *Norris* 69975; Riverside Co.: Lilly Creek, County Park near Idyllwild, San Jacinto Mountains, *Harpel* 1450 (pers. herb.); San Bernardino Co.: Cottonwood Wash, Granite Mountains, Mojave National Preserve, *Laeger & Bucknar* 1837 (CAS) [determined by Spence]; Shasta Co.: Highway 299 at Casberry Flat about 1 mile west of Hatchet Mountain Summit, *Norris* 68581 (determined by Spence).

***Bryum laevifilum* Syed** [Bryaceae]

**Literature:** Kellman 2003.

**Illustrations:** Ignatov and Ignatova 2003; Syed 1973.

**Geographic subdivisions:** CW, SNE.

**Selected specimens:** Mono Co.: Secret Lake, Toiyabe National Forest, *Norris* 77054; Santa Cruz Co.: Highway 17 at Laurel Road, *Kellman* 2702 (CAS) [confirmed by Spence].

***Bryum lanatum* (Palisot de Beauvois) Bridel** [Bryaceae]

**Literature:** Spence 1988a. As *Bryum argenteum* var. *lanatum* Crum and Anderson 1981; McCleary 1972; Millsbaugh and Nuttall 1923; Sayre 1940; Steere 1954; Steere et al. 1954.

**Illustrations:** Crum and Anderson 1981; Smith 1978.

**Geographic subdivisions:** SN.

**Selected specimens:** Fresno Co.: South Fork Kings River near Boyden Cave, Monarch Wilderness, Sequoia National Forest, *York* 503 (CAS) and Haslett Basin, Sierra National Forest, *Norris, Shevock, & Barahona* 87448; Tulare Co.: Wishon Fork Tule River above Doyle Springs and Camp Wishon, Sequoia National Forest, *Norris, Shevock, & Barahona* 87030.

***Bryum lisae* De Notaris** [Bryaceae]

**Literature:** Kellman 2003; Shevock and Toren 2001; Spence 1988a. As *Bryum cirrhatum* Lesquereux 1868; Lesquereux and James 1884; Watson 1880. As *Bryum creberrimum* Bourell 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Lawton 1971; McCleary 1972; McGrew 1976; Strid 1974; Toren 1977. As *Bryum cuspidatum* Cooke 1941; Steere 1954. As *Bryum intermedium* Lesquereux 1868; Millsbaugh and Nuttall 1923; Sulivant 1856. As *Bryum lisae* var. *cuspidatum* Yurky 1990, 1995. As *Bryum lonchocaulon* Flowers 1973; Harpel 1980a; Harthill et al. 1979; Koch 1950a, 1951e; Koch and Ikenberry 1954; Strid 1974.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ireland 1982; Lawton 1971; Smith 1973.

**Geographic subdivisions:** CaR, CW, NW, SN, SNE, SW.

**Selected specimens:** Kern Co.: north of Tiger Flat Campground, Greenhorn Mountains, Sequoia National Forest, *Shevock* 10628; Inyo Co.: South Lake Road 0.7 mile below South Lake, Inyo National Forest, *Shevock* 12536; Riverside Co.: Bighorn Overlook along Highway 74 at eastern boundary of San Bernardino National Forest, *Norris* 57833; San Francisco Co.: Presidio of San Francisco, *Shevock* 19353; Tehama Co.: Fork of Beegum Creek about 1.5 miles west of Rat Trap Gap, *Norris* 56994 (determined by Spence).

***Bryum meesioides* Kindberg in Macoun** [Bryaceae]

**Literature:** Ireland 1977; Spence 1988a.

**Illustrations:** Ireland 1977.

**Geographic subdivisions:** NW.

**Selected specimens:** According to Spence (personal communication) a California packet was determined to be this species. We have reviewed the *Bryum* holdings at CAS, MO, NY, UBC and UC and have not been able to locate a collection of *Bryum meesioides* from California. According to Ireland (1977), the gametophyte of this species is nearly indistinguishable from that of *Bryum pallens* but several diagnostic characters of the sporophyte readily separate these two related taxa. It is probable that *Bryum meesioides* remains among undetermined *Bryum* collections in California herbaria. We expect it to be documented for northern California.

**\**Bryum microerythrocarpum* C. Müller Hal. & Kindberg** [Bryaceae]

**Illustrations:** Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW.

**Selected specimens:** Humboldt Co.: near Dickson Butte, *Kirn & Nomura 117b* (UC) and Long Ridge about 26 miles north of Big Hill Road, *Norris 47788* (determined by Spence); Mendocino Co.: Pygmy Cypress Forest about 5 miles east of Albion, *Norris 11785 & 11786*; Santa Cruz Co.: railroad tracks near Rincon Road, Henry Cowell Redwoods State Park, *Kellman 616* (UC); Tehama Co.: Highway 36 at Georgie Dells Road, *Norris 56060*.

***Bryum miniatum* Lesquereux** [Bryaceae]

**Literature:** Bourell 1981; Crum and Anderson 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Howe 1896; Jamieson 1969; Kellman 2003; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Long 1978; McGrew 1976; Mishler 1978; Showers 1982; Spence 1988a; Spjut 1971; Toren 1977; Watson 1880; Yurky 1990, 1995. As *Bryum atwateriae* Lesquereux and James 1884; Phelps 1878; Watson 1880.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** CaR, CW, NW, SN, SNE, SW.

**Selected specimens:** Alpine Co.: Red Lake Creek, Tiyoabe National Forest, *Norris 88124*; Del Norte Co.: Smith River along Highway 199 about 9 miles east of junction with Highway 101, Six Rivers National Forest, *Norris 85001*; Mariposa Co.: base of Yosemite Falls, Yosemite National Park, *Koch 1686* (UC); Napa Co.: Napa-Monticello Road, *Koch 1367* (UC); Riverside Co.: Fleming Ranch Road, San Jacinto Mountains, San Bernardino National Forest, *Harpel 2970* (pers. herb.); Santa Cruz Co.: Big Basin State Park, *Kellman 694* (CAS) [determined by Spence]; Tulare Co.: between Redwood Crossing and Long Meadow, Wishon Fork Tule River, Golden Trout Wilderness, Sequoia National Forest, *Shevock 10609*.

***Bryum muehlenbeckii* Bruch & W. P. Schimper** [Bryaceae]

**Literature:** Crum and Anderson 1981; Holmberg 1969; Koch 1950a; McGrew 1976; Showers 1982; Spence 1988a; Toren 1977.

**Illustrations:** Crum and Anderson 1981; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Mariposa Co.: Highway 49 about 3.3 miles southeast of Mariposa at junction with Highway 140, *Shevock 15242*; Shasta Co.: Highway at Shasta College north of Redding, *Norris 57789*; Tulare Co.: below Paradise Ridge overlooking the Middle Fork Kaweah River, Sequoia National Park, *Shevock 14633*.

***Bryum pallens* Swartz** [Bryaceae]

**Literature:** Holmberg 1969; Koch 1958; McGrew 1976; Showers 1982; Spence 1988a; Spjut 1971; Toren 1977.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1977; Lawton 1971; Zolotov 2000.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Butte Co.: opposite spillway of Oroville Dam, *Norris 52557*; Kern Co.: Pine Tree Canyon about 4 miles west of Highway 14, southern Piute Mountains, *Hare 110* (CAS); Contra Costa Co.: Mitchell Canyon, Mt. Diablo State Park, *Norris 100611*; Lake Co.: head of Mill Creek, Mt. Sanhedrin, Mendocino National Forest, *Toren, Heise, & Dearing 7633* (CAS); Mendocino Co.: Covelo Road about 3.1 miles east of Longvale, *Norris 21727*; Plumas Co.: Feather River Canyon about 1 mile inside Plumas National Forest boundary, *Norris 52620*; Trinity Co.: Underwood Mountain Road near junction road to Big Lake, *Norris 10915*.

***Bryum pallescens* Schleicher ex Schwägrichen** [Bryaceae]

**Literature:** Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Jamieson 1969; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; McGrew 1976; Showers 1982; Sigal 1975; Spence 1988a; Spjut 1971; Strid 1974. As *Bryum subrotundum* Lesquereux 1868; Lesquereux and James 1884; Watson 1880.

**Illustrations:** Allen 2002; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Ochyra 1998a; Sharp et al. 1994; Smith 1973, 1978; Zolotov 2000.

**Geographic subdivisions:** CaR, MP, NW, SN, SNE, SW.

**Selected specimens:** Humboldt Co.: Beach Lagoon, *Jamieson 857* (UC); Inyo Co.: Taboose Pass Trail, John Muir Wilderness, Inyo National Forest, *Shevock 16616* (determined by Spence); Mendocino Co.: Little Red Mountain, *Sigal s.n.* (UC); Modoc Co.: near Post Canyon north of Adin, *Norris 47412*; San Bernardino Co.: South Fork Meadows, San Geronio Wilderness, San Bernardino National Forest, *Harpel 2186* (pers. herb.); Shasta Co.: road to Castle Lake at Castle Lake Creek, Shasta-Trinity National Forest, *Norris & Hillyard 103841*; Siskiyou Co.: Jaynes Creek northwest of Klamath River, *Norris 48693*; Tulare Co.: streamlet above Dorst Creek Campground, Sequoia National Park, *Shevock & Dennis 14100*.

***Bryum pseudotriquetrum* (Hedwig) Gärtner, B. Meyer & Scherbius** [Bryaceae]

**Literature:** Bourell 1981; Crum and Anderson 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Long 1978; McGrew 1976; Shevock and Toren 2001; Showers 1982; Spence 1988a; Steere et al. 1954; Strid 1974; Toren 1977; Watson 1880; Yurky 1990, 1995. As *Bryum crassirameum* Holmberg 1969; Howe 1896; Koch 1950a; Koch and Ikenberry 1954; Spjut 1971. As *Bryum firmum* Cooke



1941. As *Bryum flagellosum* Koch 1950a, 1958; Koch and Ikenberry 1954. As *Bryum pseudotriquetrum* var. *crassirameum* Toren 1977; Yurky 1990.

**Illustrations:** Abramov and Volkova 1998; Allen 2002; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Ochyra 1998a; Sharp et al. 1994; Smith 1978; Zolotov 2000.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SNE, SW.

**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris* 87161; Riverside Co.: Vista Grand Guard Station, San Jacinto Mountains, San Bernardino National Forest, *Harpel* 977 (pers. herb.); Shasta Co.: Highway 89 about 21 miles east of McCloud, *Norris & Hermann* 22646; Tulare Co.: Big Meadows off of Forest Road 14S11, Sequoia National Forest, *Shevock & York* 13673; Tuolumne Co.: Pilot Ridge, Stanislaus National Forest, *Shevock* 13274.

***Bryum pyriferum* Crundwell & H. Whitehouse** [Bryaceae]

**Literature:** Kellman 2003; Shevock and Toren 2001.

**Illustrations:** Crundwell and Whitehouse 1981.

**Geographic subdivisions:** CaR, CW, DMoj.

**Selected specimens:** Lake Co.: west of Butte Rock near Yolo County line, *Toren & Dearing* 8616 (CAS) [confirmed by Spence]; San Bernardino Co.: Clark Mountain, Mojave National Preserve, *Laeger* 1308 (CAS) [determined by Spence]; San Francisco Co.: Alcatraz Island, Golden Gate National Recreation Area, *Toren, Shevock, & Thomas* 8459 (CAS) [confirmed by Spence]; Santa Cruz Co.: Enchanted Loop Trail along Baldwin Creek, Wilder Ranch State Park, *Kellman* 2583 (CAS) and Aptos Creek, *Kellman* 2041 (CAS) [determined by Spence].

***Bryum radiculosum* Bridel** [Bryaceae]

**Literature:** Spence 1988a.

**Illustrations:** Crum and Anderson 1981; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Del Norte Co.: Gasquet Toll Road at Eighteen Mile Creek, *Norris* 55685 (determined by Spence); San Mateo Co.: Spring Canyon Road, Filioi Center just north of Woodside, *Whitemore* 4415 (CAS).

***Bryum rubens* Mitten** [Bryaceae]

**Literature:** Crum and Anderson 1981; Crundwell and Whitehouse 1978; Spence 1988a; Yurky 1990, 1995.

**Illustrations:** Ignatov and Ignatova 2003; Smith 1978; Zolotov 2000.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Lake Co.: off of Morgan Valley Road, BLM Knoxville Recreation Area, *Toren & Dearing* 7066 (CAS) [determined by Spence]. Marin Co.: San Pedro Road at milepost 4.91, *Yurky* 388 (SFSU).

***Bryum subapiculatum* Hampe** [Bryaceae]

**Literature:** Kellman 2003; Spence 1988a.

**Illustrations:** Ignatov and Ignatova 2003; Sharp et al. 1994; Zolotov 2000.

**Geographic subdivisions:** CW.

**Selected specimens:** Santa Cruz Co.: near Rincon, Henry Cowell Redwoods State Park, *Kellman* 616 (CAS) [determined by Spence] and near Felton, *Kellman* 1318 (CAS), and Yellow Bank Creek, *Kellman* 2090 (CAS).

***Bryum tenuisetum* Limpricht** [Bryaceae]

**Literature:** Crum and Anderson 1981; Lawton 1971; Spence 1988a; Toren 1977.

**Illustrations:** Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** GV, SN.

**Selected specimens:** Fresno Co.: Roaring River Falls above South Fork Kings River, Kings Canyon National Park, *Shevock* 13760; Solano Co.: Campus of the University of California, Davis, *Norris* 48232.

***Bryum torquescens* Bruch** [Bryaceae]

**Literature:** Howe 1896; Kingman 1912; Lesquereux 1868; Lesquereux and James 1884; Millspaugh and Nuttall 1923; Sayre 1940; Shevock and Toren 2001; Spence 1988a; Sullivant 1856; Watson 1880.

**Illustrations:** Smith 1978; Syed 1973.

**Geographic subdivisions:** CW, NW, SN.

**Selected specimens:** Kern Co.: Highway 178 about 2 miles west of Live Oak Campground east of Bakersfield, *Norris* 70110 (determined by Spence); Fresno Co.: below West Meadow near Sand Flat, Sierra National Forest, *Shevock* 14195; Lake Co.: Robinson Creek east of Highway 29 along Bridge Arbor Road, *Toren & Dearing* 8667 (CAS) [confirmed by Spence]; San Francisco Co.: Lone Mountain Campus, University of San Francisco, *Shevock* 19334.

***Bryum turbinatum* (Hedwig) Turner** [Bryaceae]

**Literature:** Flowers 1973; Harpel 1980a; Harthill et al. 1979; Kingman 1912; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; McGrew 1976; Spence 1988a; Strid 1974; Yurky 1990, 1995.

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Lawton 1971; Smith 1978; Zolotov 2000.

**Geographic subdivisions:** CaR, CW, NW, MP, SN, SNE, SW.

**Selected specimens:** Del Norte Co.: Whiskey Lake, Six Rivers National Forest, *Norris* 57707a; Lassen Co.: Termo-Grasshopper Road about 12 miles west of Termo, *Norris & Hermann* 22639; Mono Co.: Barney Lake, Toiyabe National Forest, *Norris* 67107; Riverside Co.: Round Valley, San Jacinto State Park, *Harpel* 1068 (pers. herb.); Siskiyou Co.: headwaters of Preston Peak, Klamath National Forest, *Norris* 23242; Tulare Co.: Lloyd



Meadows Basin, Sequoia National Forest, *Shevock 4433* and Mosquito Lake Trail, Mineral King, Sequoia National Park, *Shevock & O'Brien 15934* (determined by Spence).

***Bryum uliginosum* (Bridel) Bruch & W. P. Schimper** [Bryaceae]

**Literature:** Flowers 1973; Koch 1950a; Watson 1880. As *Bryum cernuum* Lesquereux 1868; Watson 1880.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Smith 1978; Zolotov 2000.

**Geographic subdivisions:** SN.

**Selected specimens:** Tulare Co.: between Redwood Crossing and Long Meadow, Wishon Fork Tule River, Golden Trout Wilderness, Sequoia National Forest, *Shevock 10604* and headwaters of Freeman Creek, 0.5 mile east of Quaking Aspen, Sequoia National Forest, *Shevock 10638*.

***Bryum violaceum* Crundwell & Nyholm** [Bryaceae]

**Literature:** Crum and Anderson 1981; Kellman 2003; Lawton 1971; Spence 1988a; Toren 1977; Yurky 1990, 1995.

**Illustrations:** Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Smith 1978; Zolotov 2000.

**Geographic subdivisions:** CaR, CW, DMoj, DSon, NW, SN, SW.

**Selected specimens:** Contra Costa Co.: Mt. Diablo State Park, *Norris 100525*; Fresno Co.: Middle Fork Kings River near LeConte Ranger Station, Kings Canyon National Park, *Shevock & Haultain 18628* (determined by Allen); Lake Co.: end of Hells Peak Road, *Toren 843* (CAS); Marin Co.: Pike County Gulch, *Yurky 309* (SFSU); Monterey Co.: Sam Jones Road about 1 km east of Piojo Airstrip, Hunter-Liggett Military Reservation, *Norris 87220 & 87221*; San Bernardino Co.: Pachalka Spring, Clark Mountain, Mojave National Preserve, *Laeger, Newman & Adams 1800* (CAS) [determined by Spence]; Santa Cruz Co.: Bonny Doon, *Kellman 917* (CAS).

***Bryum weigelii* Sprengel** [Bryaceae]

**Literature:** Bourell 1981; Crum and Anderson 1981; Flowers 1973; Koch 1950a, 1958; Koch and Ikenberry 1954; Lawton 1971; McGrew 1976; Showers 1982; Spence 1988a; Spjut 1971. As *Bryum duvallii* Lesquereux 1868; Lesquereux and James 1884; Watson 1880.

**Illustrations:** Abramov and Volkova 1998; Allen 2002; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Zolotov 2000.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Humboldt Co.: Jacoby Creek Road near Quarry southeast of Arcata, *Norris 68250* (determined by Spence); Mariposa Co.: Half Moon Meadow, Yosemite National Park, *Shevock, Wilken, & Fritzke 18501* (determined by Spence);

Siskiyou Co.: Scott Camp Creek Basin, *Norris 53094*; Tulare Co.: Big Meadow off of Forest Road 14S11, Sequoia National Forest, *Shevock & York 13663*.

***Buckiella undulata* (Hedwig) Ireland** [Hypnaceae]

**Literature:** As *Hypnum undulatum* Lesquereux 1868; Watson 1880. As *Plagiothecium undulatum* Holmberg 1969; Howe 1897; Ireland 1985, 1986; Jamieson 1969; Koch 1950a; Lawton 1971; Smith 1970. See also Ireland 2001.

**Illustrations:** Ireland 1985; Lawton 1971.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Del Norte Co.: trail between Requa and False Klamath Cove, Redwood National Park, *Norris 24064*; Humboldt Co.: north of Elk Grove Park Headquarters, Prairie Creek Redwoods State Park, *Shevock 16738* and Highway 101 at Seawood Drive about 2 miles north of Trinidad, *Shevock 16730*; Marin Co.: Old Pine Trail, Point Reyes National Seashore, *Robertson 1872* (UC) & 1886 (CAS); Mendocino Co.: County Road 409 about 1 mile east of Highway 1 south of Fort Bragg, *Norris 11688* and Near Little River, *Boyd & Kelly s.n.* (CAS).

***\*Buxbaumia aphylla* Hedwig** [Buxbaumiaceae]

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971.

**Geographic subdivisions:** NW.

**Selected specimens:** Humboldt Co.: shores of Lake Prairie, *Norris 50408*; east of Korbel Road about 12 miles from Blue Lake, *D.E. Jackson 876* (UC).

***Buxbaumia piperi* Best** [Buxbaumiaceae]

**Literature:** Christy and Wagner 1996; Holmberg 1969; Jamieson 1969; Jamieson and Holmberg 1969; Lawton 1971; Toren and Sigal 1974.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, NW.

**Selected specimens:** Del Norte Co.: Gasquet-Orleans Road, 0.5 mile from Big Flat Road, Six Rivers National Forest, *Norris & Piippo 82421*; Humboldt Co.: Bill Hill Road at South Fork Mill Creek, *Norris 58647*, Forest Road 10N02, head of Mill Creek, Six Rivers National Forest, *Norris 70567* and Redwood Valley Road about 1 mile north of Highway 299, *Norris 48281*; Mendocino Co.: Jackson State Forest near Mendocino, *Oberlander s.n.* (SFSU), Mendocino Woodlands Camp about 20 km east of Mendocino, *Toren 613* (SFSU) and *Toren & Bourell 1478* (SFSU); Siskiyou Co.: Shadow Creek about 6 miles northeast of Cecilville, *Norris 70553* and Haypress Meadows, Marble Mountain Wilderness, Klamath National Forest, *Norris 12419*.

***Buxbaumia viridis* (A. P. de Candolle) Mougeot & Nestler** [Buxbaumiaceae]

**Literature:** As *Buxbaumia indusiata* Spjut 1971.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** NW.

**Selected specimens:** Humboldt Co.: near Pilot Rock, Six Rivers National Forest, *McFarland 01JRM61202* (UC) [determined by Harpel]; Mendocino Co.: Demonstration Forest, Highway 128 near Navarro, *Parsons 113* (SFSU), *Desjardin 2581* (SFSU) and *Giles 121* (SFSU); Trinity Co.: Forest Road 33N45 about 2 miles east of Big Creek Campground, Klamath National Forest, *Jennings 99-012* (UC) [determined by Harpel].

***Calliergonella cuspidata* (Hedwig) Loeske**  
[Hypnaceae]

**Literature:** Ireland 1982; Kellman 2003; Lawton 1971; Shevock and Toren 2001.

**Illustrations:** Buck 1998; Hedenäs 1993a, 2003; Ireland 1982; Kanda 1978; Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Alameda Co.: Mountain View Cemetery, *J.T. Howell s.n.* (UC); Humboldt Co.: bog at Big Lagoon County Park, *Norris 46062 & 46063*; San Francisco Co.: campus lawns at San Francisco State University, *Showers 450* (UC) and *Desjardin 2691* (SFSU), McLaren Park, *Shevock 19136* and Fort Mason, Golden Gate National Recreation Area, *J.T. Howell s.n.* (CAS); Santa Cruz Co.: City of Santa Cruz, *Kellman 1826* (CAS).

**\**Campylium chrysophyllum* (Bridel) J. M. Lange** [Campyliaceae]

**Illustrations:** Buck 1998; Flowers 1973; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978. As *Campyliadelphus chrysophyllum* Hedenäs 2003.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Inyo Co.: Lone Pine Creek at Alabama Hills, *Shevock & Norris 16856*; Mono Co.: above Mildred Lake, John Muir Wilderness, Inyo National Forest, *Norris 71395*; Tulare Co.: Crescent Meadow at Giant Forest, Sequoia National Park, *Shevock 16670* and Holby Meadow near the Ponderosa, Sequoia National Forest, *Shevock 16532*.

***Campylium hispidulum* (Bridel) Mitten**  
[Campyliaceae]

**Literature:** Spjut 1971.

**Illustrations:** Flowers 1973; Ireland 1982; Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Siskiyou Co.: west end English Lake, Marble Mountain Wilderness, Klamath National Forest, *Spjut 1598* (UC); Jaynes Creek at headwaters, northwest of Klamath River, Klamath National Forest, *Norris 48680* (determined by Giles); Tulare Co.: Twisselmann Botanical Area near Sirretta Pass, Kern Plateau, Sequoia National Forest, *Shevock 18418*.

***Campylium polygamum* (W. P. Schimper) C. E. O. Jensen** [Campyliaceae]

**Literature:** As *Campylium polygamum* var. *fluitans* Koch 1950a. As *Drepanocladus polygamus* Hedenäs 1997a.

**Illustrations:** Flowers 1973; Ireland 1982; Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Fresno Co.: Rowell Meadow, Jennie Lakes Wilderness, Sequoia National Forest, *Shevock & York 13706 & 13715* (determined by Ochrya); Inyo Co.: Warm Springs, White Mountains, *Laeger 1455* (CAS) [determined by Hedenäs]; Lake Co.: Tule Lake, Mt. Sanhedrin, *Toren 5101* (CAS) and *Shevock, Erter, Toren, & Dearing 19487*; Mendocino Co.: pond off of Ant Ridge, Mendocino National Forest, *Shevock & Isle 15912*; Plumas Co.: Gray Eagle Valley floating in ponds, *Leiberg 5495* (EGB); Siskiyou Co.: trail to English Lake between wilderness boundary and Abbott Ranch, Klamath National Forest, *Spjut 1379* (UC); Tulare Co.: Crescent Meadow, Giant Forest, Sequoia National Park, *Shevock 16672* (determined by Ochrya).

***Campylium stellatum* (Hedwig) C. E. O. Jensen**  
[Campyliaceae]

**Literature:** Koch 1958.

**Illustrations:** Buck 1998; Flowers 1973; Hedenäs 2003; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Fresno Co.: Taboose Pass Trail, headwaters of South Fork Kings River, Kings Canyon National Park, *Shevock 13871*; Inyo Co.: trail from Onion Valley to Robinson Lake, Inyo National Forest, *Norris 46615*; Siskiyou Co.: trail from Cedar Lake to Cliff Lake, *Norris 52989* and Parks Creek at Forest Road 17, Shasta-Trinity National Forest, *Norris & Hillyard 104052*; Trinity Co.: Big Flat, *Norris 8930*.

**\**Campylopodiella stenocarpa* (Wilson in Seemann) P. Müller & Frahm** [Dicranaceae]

**Illustrations:** As *Atractyllocarpus stenocarpus* Sharp et al. 1994.

**Geographic subdivisions:** SN.

**Selected specimens:** Tulare Co.: Lion Meadows Creek near Little Kern River, Golden Trout Wilderness, Sequoia National Forest, *Norris 67935* (determined by Frahm).

***Campylopus introflexus* (Hedwig) Bridel**  
[Dicranaceae]

**Literature:** Frahm 1980; O'Brien 1999; Shevock and Toren 2001; Showers 1982.

**Illustrations:** Frahm 1985; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SW.

**Selected specimens:** Humboldt Co.: three miles north of Manila on stabilized dunes, *Montalvo s.n.* (UC), Golf Course Road about 0.25 mile west of



Club House, Bayside Golf Course, *Norris* 53102; Lake Co.: south shore Clear Lake at Sulfur Bank Mine, *Toren* 8027 (CAS); Marin Co.: Limantour Beach, Point Reyes National Seashore, *O'Brien* 3353 (UC); Mendocino Co.: end of Simpson Land, Pygmy Cypress Forest, *Showers & Toren* 3258 (UC) [determined by Frahm] and Little River, Fern Canyon, *He* 40001 (MO); Monterey Co.: Cortez Road near Viscaino Road near Pebble Beach, *Yadon s.n.* (UC); San Francisco Co.: Mt. Davidson, *Toren* 7760 (CAS) [determined by Frahm]; San Mateo Co.: Pacifica, San Pedro County Park, *Bourell* 7000 (CAS); Santa Barbara Co.: Los Sauces Trail, Santa Cruz Island, Channel Islands National Park, *Robertson* 2154 (CAS); Shasta Co.: Boiling Springs Lake, Lassen Volcanic National Park, *Showers* 1909 (UC) [determined by Frahm].

***Campylopus pyriformis* (F. Schultz) Bridel**  
[Dicranaceae]

**Literature:** Shevock and Toren 2001.

**Illustrations:** Arts and Frahm 1990; Smith 1978.

**Geographic subdivisions:** CW.

**Selected specimens:** San Francisco Co.: lawn area at Embarcadero near Piers 29 and 31, *Shevock* 19102 (determined by Frahm).

***Campylopus schmidii* (C. Müller Hal.) A. Jaeger** [Dicranaceae]

**Literature:** Christy and Wagner 1996. As *Campylopus aureus* Frahm 1980, 1985. As *Campylopus atrovirens* Holmberg 1969.

**Illustrations:** Frahm 1980, 1985.

**Geographic subdivisions:** NW.

**Selected specimens:** Del Norte Co.: Stony Creek Trail near Gasquet, Six Rivers National Forest, *Nelson* 93 (UC), Gasquet, *Schofield* 28813 (MICH), bog about 2 miles north of Gasquet, Six Rivers National Forest, *Norris* 8167; Humboldt Co.: Big Lagoon north of Patricks Point State Park, *Bourell* 2005 (CAS, MO); Mendocino Co.: Pygmy Cypress Forest along Summers Road east of Fort Bragg, *Norris* 23457 & 23462 (determined by Frahm).

***Campylopus subulatus* W. P. Schimper in Rabenhorst** [Dicranaceae]

**Literature:** Frahm 1994; Kellman 2003; Shevock and Toren 2001.

**Illustrations:** Smith 1978.

**Geographic subdivisions:** CaR, CW, NW.

**Selected specimens:** Del Norte Co.: Stony Creek about 1 mile north of junction with Smith River, *Norris* 52767 (determined by Frahm) and French Hill Road about 3.5 miles above Highway 199 southeast of Gasquet, Six Rivers National Forest, *Norris* 85055 (MO); San Francisco Co.: Mt. Davidson, *Shevock* 19291 and Panhandle of Golden Gate Park, *Shevock* 18887 (determined by Frahm); Santa Cruz Co.: Scotts Valley, *Kellman* 1123 (CAS); Shasta Co.: Dry Creek Road at first bridge off of Highway 36 northeast of Redding, *Norris* 72342, 3.7 km east of Anderson, *Norris* 47645 (de-

termined by Frahm) and Sacramento River Trail northeast of Redding, *Norris* 105298.

***Ceratodon purpureus* (Hedwig) Bridel**  
[Ditrichaceae]

**Literature:** Bourell 1981; Bradshaw 1926; Crum and Anderson 1981; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Long 1978; McCleary 1972; McGrew 1976; Mishler 1978; Sayre 1940; Shevock and Toren 2001; Showers 1982; Smith 1970; Spjut 1971; Steere 1954; Steere et al. 1954; Strid 1974; Toren 1977; Watson 1880; Whittemore and Sommers 1999; Yurky 1990. As *Ceratodon purpureus* var. *xanthopus* Lesquereux 1868; Sullivant 1856; Watson 1880.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Ochrya 1998a; Sharp et al. 1994; Smith 1978; Zander and Ireland 1979.

**Geographic subdivisions:** CaR, CW, GV, MP, NW, SN, SNE, SW.

**Selected specimens:** Butte Co.: levee of Feather River north of Gridley, *Norris* 52540; Modoc Co.: near Mayfield Ice Caves (Siskiyou Co.), *Norris & Hermann* 22519; San Diego Co.: Cameron Station Campground, Cleveland National Forest, *Norris* 57804; San Francisco Co.: Twin Peaks, San Francisco, *Shevock* 18862 & 19142; Sonoma Co.: South Ridge Trail above Lake Sonoma at Skaggs Springs Road, *Norris* 86938; Tulare Co.: Chamise Flats along Kern River 2.3 miles south of Roads End, Sequoia National Forest, *Shevock, Norris, & Barahona* 13028.

***Ceratodon stenocarpus* Bruch & W. P. Schimper** [Ditrichaceae]

**Literature:** Kellman 2003.

**Illustrations:** Burley and Prichard 1990; Sharp et al. 1994.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Mariposa Co.: Road to Mariposa Grove near Wawona Entrance Station, Yosemite National Park, *Shevock* 21434; Monterey Co.: Cemetery on Lockwood Road about 2 km east of Alamo Air Strip, Hunter-Liggett Military Reservation, *Norris* 87334 and Fish & Game Office on Garden Road, *Lind s.n.* (CAS) [determined by Robinson]; Santa Barbara Co.: Orcutt Hill, *Bratt s.n.* (SBBG); Santa Cruz Co.: Mount Hermon Road near Felton, *Kellman* 2803 (CAS); Shasta Co.: Mill Creek Road at Boulder Creek Trail, Whiskeytown National Recreation Area, *Norris & Hillyard* 105365; Tehama Co.: Highway 36 at Georgie Dells Road, *Norris* 56067.

***Claopodium bolanderi* Best** [Leskeaceae]

**Literature:** Bourell 1981; Holmberg 1969; Koch 1950a, 1951e; Lawton 1971; McGrew 1976; Noguchi 1964; Showers 1982; Spjut 1971; Toren 1977; Yurky 1990, 1995.



**Illustrations:** Lawton 1971; Noguchi 1964.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Del Norte Co.: Whiskey Lake, Six Rivers National Forest, *Norris* 83372; Humboldt Co.: South Fork Tish-Tang-a-Tang Creek east of Hoopa, *Norris & Whittemore* 52367; Lake Co.: Mt. Sanhedrin, *Shevock, Ertter, Toren, & Dearing* 19492; Marin Co.: Sir Francis Drake Blvd. Near Lagunitas, *Yurky* 402 (SFSU); Placer Co.: Bowman Lake west of Truckee, Tahoe National Forest, *Norris* 76955; Shasta Co.: Castle Lake at Castle Lake Creek, southwest of Mt. Shasta City, Shasta-Trinity National Forest, *Norris & Hillyard* 103845; Siskiyou Co.: Scotts Camp Creek Basin, *Norris* 53077; Tuolumne Co.: Forest Road 3N01 at Clavey Creek, Stanislaus National Forest, *Norris* 78792.

***Claopodium crispifolium* (W. J. Hooker)**

**Renauld & Cardot** [Leskeaceae]

**Literature:** Bourell 1981; Holmberg 1969; Jamieson 1969; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Noguchi 1964; Spjut 1971; Yurky 1990, 1995. As *Hypnum crispifolium* *Sullivant* 1856; *Watson* 1880.

**Illustrations:** Lawton 1971; Noguchi 1964.

**Geographic subdivisions:** CaR, CW, NW.

**Selected specimens:** Del Norte Co.: South Fork Smith River about 3 miles from Big Flat, *Norris* 74237; Marin Co.: Cataract Trail near Alpine Lake, *Yurky* 403 (SFSU); Mendocino Co.: Fox Creek, Branscomb Reserve, *Norris* 47188; San Mateo Co.: Pilarcitos Canyon below Lake Pilarcitos, *Steere s.n.* (UC); Shasta Co.: Damnation Pass Road at Lunch Gulch, *Norris & Hermann* 22563; Trinity Co.: Highway 36 at Clear Creek about 3 miles west of Forest Glen, *Norris* 68729.

***Claopodium whippleanum* (Sullivant) Renauld**

**& Cardot** [Leskeaceae]

**Literature:** Best 1897; Bourell 1981; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Jamieson 1969; Kellman 2003; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Long 1978; McCleary 1972; Mishler 1978; Noguchi 1964; Sayre 1940; Shevock and Toren 2001; Showers 1982; Sigal 1975; Smith 1970; Steere 1954; Steere et al. 1954; Thomson and Ketchledge 1958; Toren 1977; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Claopodium leuconeuron* *Bradshaw* 1926; *Howe* 1896; *Kingman* 1912; *Millspaugh and Nuttall* 1923. As *Claopodium whippleanum* var. *leuconeuron* *McCleary* 1972. As *Hypnum whippleanum* *Sullivant* 1856; *Watson* 1880.

**Illustrations:** Lawton 1971; Noguchi 1964; Sharp et al. 1994.

**Geographic subdivisions:** CaR, CW, DMoj, NW, SN, SW.

**Selected specimens:** Riverside Co.: Deep Springs Trail, San Jacinto State Park, San Jacinto Mountains, *Harpel* 554 (pers. herb.); San Bernardino Co.:

Kingston Peak, Kingston Wilderness, Mojave Desert, *Laeger & Bogan* 1765 (CAS); San Francisco Co.: Mt. Davidson, *Shevock* 19297; Santa Barbara Co.: Windmill Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock* 20904; Siskiyou Co.: Soda Creek about 4 miles northeast of Interstate 5 near Dunsmuir, Shasta-Trinity National Forest, *Norris* 84804; Sonoma Co.: Hamilton Ranch, 1 mile from Old Adobe east of Petaluma, *Koch* 337 (UC); Tulare Co.: General's Highway, 2.1 miles above Potwisha Campground and 0.2 miles below Hospital Rock, Middle Fork Kaweah River, Sequoia National Park, *Shevock* 15180.

***Conardia compacta* (C. Müller Hal.) H.**

**Robinson** [Campylaceae]

**Literature:** Ireland 1982. As *Amblystegium compactum* *Cheney* 1897; *Flowers* 1973; *Koch* 1950a; *Koch and Ikenberry* 1954; *Lesquereux* 1868; *Steere* 1954. As *Rhynchostegiella compacta* *Harthill et al.* 1979; *Lawton* 1971; *Long* 1978; *McCleary* 1972.

**Illustrations:** *Flowers* 1973; *Hedenäs* 1989a, 1993a, 2003; *Ireland* 1982; *Lawton* 1971; *Sharp et al.* 1994.

**Geographic subdivisions:** DMoj, DSon, NW, SN, SNE, SW.

**Selected specimens:** Inyo Co.: Pine Creek Trail less than 0.5 mile from end of Pine Creek Road, Inyo National Forest, *Shevock, Halford, & Nelson* 15308; Lake Co.: along road to Harlin Springs south of Boggs Mountain, *Toren & Dearing* 7281 (CAS); Mariposa Co.: Highway 49 above Hells Hollow near milepost 32, *Shevock* 18749; Siskiyou Co.: Shasta Springs, *Howe* 127 (UC); Tulare Co.: Coy Flat Road, 0.25 mile south of bridge crossing of Middle Fork Tule River below Camp Nelson, Sequoia National Forest, *Norris, Shevock, & Barahona* 87663 & 87679; Ventura Co.: road to summit of Mt. Pinos about 1 mile below Chula Vista Campground, Los Padres National Forest, *Laeger* 1718 (CAS).

**\**Conostomum tetragonum* (Hedwig) Lindberg**

[Bartramiaceae]

**Illustrations:** *Crum and Anderson* 1981; *Smith* 1978.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Alpine Co.: near Winnemucca Lake, Mokelumne Wilderness, Eldorado National Forest, *Norris* 71243; Mono Co.: Conness Lakes, Inyo National Forest, *Janeway* 7703 (UC).

***Coscinodon calypttratus* (Drummond) C. E. O.**

**Jensen in Kindberg** [Grimmiaceae]

**Literature:** *Hastings* 1999; *Yurky* 1995. As *Grimmia calypttrata* *Flowers* 1973; *Harpel* 1980a; *Harthill et al.* 1979; *Koch* 1950a; *Lawton* 1971; *Lesquereux* and *James* 1884; *Spjut* 1971.

**Illustrations:** *Flowers* 1973; *Hastings* 1999; *Lawton* 1971; *Muñoz* 1998c.

**Geographic subdivisions:** DMoj, MP, SNE, SW.

**Selected specimens:** Amador Co.: about 3 miles

west of Salt Springs Reservoir, Eldorado National Forest, *Norris & Shevock 103258*; Lassen Co.: Highway 139, 3 miles north of Susanville, *Whittemore 731a* (confirmed by Muñoz), and Termo-Grasshopper Road about 12 miles west of Termo, *Norris 22640*; Inyo Co.: on road to Schulman Grove, Ancient Bristlecone Pine Forest Botanical Area, White Mountains, Inyo National Forest, *Norris 46854*; Modoc Co.: Middle Alkali Lake north-east of Cedarville, *Norris 47496*, North Fork Pit River about 12 miles south of Davis Creek, *Norris 23624* and low hills north of Adin, *Norris 47421*; Riverside Co.: Highway 243 at milepost 10.77, San Jacinto Mountains, San Bernardino National Forest, *Harpel 87* (pers. herb.).

***Cratoneuron filicinum* (Hedwig) Spruce**  
[Cratoneuraceae]

**Literature:** Harpel 1980a; Harthill et al. 1979; Koch 1949a, 1950a, 1958; Koch and Ikenberry 1954; Lawton 1971; Long 1978; Mishler 1978; Showers 1982; Spjut 1971; Strid 1974.

**Illustrations:** Flowers 1973; Hedenäs 1993a, 2003; Ireland 1982; Koponen et al. 1995; Lawton 1971; Ochya 1989; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, DMoj, MP, NW, SN, SNE, SW.

**Selected specimens:** Fresno Co.: Redwood Creek above Highway 180, Monarch Wilderness, Sequoia National Forest, *Shevock & York 12682* (determined by Ochya); Lake Co.: headwaters of Bear Creek, Snow Mountain Wilderness, Mendocino National Forest, *Toren & Dearing 7490* (CAS); Los Angeles Co.: Dorr Canyon northwest slope of Mt. Burham, Angeles National Forest, *Wheeler 8829 & 8830* (CAS, UC) [determined by Hedenäs]; Mono Co.: Koenig Lake near Leavitt Lake east of Sonora Pass, Toiyabe National Forest, *Norris 57209*; Nevada Co.: Sagehen Creek Biological Station, Tahoe National Forest, *Tavares 1965* (UC); Trinity Co.: above Big Boulder Lake west of Carrville, Shasta-Trinity National Forest, *Norris & Streimann 74842*; Tulare Co.: Deep Creek, Little Kern River, Golden Trout Wilderness, Sequoia National Forest, *Norris 67881*.

***Crossidium aberrans* Holzinger & E. B. Bartram** [Pottiaceae]

**Literature:** Flowers 1973; Kellman 2003; Lawton 1971; Stark and Whittemore 1992.

**Illustrations:** Delgadillo 1975; Dirkse and Bouman 1995; Flowers 1973; Lawton 1971; Sharp et al. 1994; Zander 1993.

**Geographic subdivisions:** CW, DMoj, DSon, GV, SW.

**Selected specimens:** Imperial Co.: about 2 miles east of Mountain Springs County Park, Colorado Desert, *Norris & Piippo 82086*; Inyo Co.: Fall Canyon, Grapevine Mountains, Death Valley National Park, *Laeger 834* (CAS); Kern Co.: Mesquite Canyon northwest of Garlock, El Paso Mountains, Mojave Desert, *Norris 87134*; Blunt-nosed Leopard

Lizard Preserve, San Joaquin Valley, *Shevock 10268*; Monterey Co.: Arroyo Seco Creek about 4 miles west of Greenfield, *Norris 48509*; San Diego Co.: canyon above Bow Willow Canyon Campground, Anza Borrego State Park, *Norris 77723* and Sentenac Canyon along San Felipe Creek, 3.5 miles east of Scissors Crossing along Highway 78, *Stark 472c* (MO) [determined by Delgadillo].

***Crossidium crassinerve* (De Notaris) Juratzka**  
[Pottiaceae]

**Literature:** As *Crossidium desertorum* Flowers 1973; Harthill et al. 1979; Koch 1950a; McCleary 1972; Sayre 1940.

**Illustrations:** Cano et al. 1992; Crum and Anderson 1981; Delgadillo 1975; Dirkse and Bouman 1995; Flowers 1973; Zander 1993.

**Geographic subdivisions:** CW, DMoj, DSon, GV, SN, SW.

**Selected specimens:** Fresno Co.: Pine Flat Reservoir near Trimmer, Sierra National Forest, *Norris 50942*; Imperial Co.: end of Clark Lane south of Coyote Wells, Colorado Desert, *Norris & Piippo 82072*; Inyo Co.: near Scottys Castle, Grapevine Mountains, Death Valley National Park, *Shevock 21334*; Kern Co.: Mesquite Canyon northwest of Garlock, El Paso Mountains, Mojave Desert, *Norris 87149* and Kern River along Highway 178, Sequoia National Forest, *Norris 50769*; San Luis Obispo Co.: about 1 mile west of Poso Summit, *Norris 55209*.

***Crossidium seriatum* H. Crum & W. C. Steere**  
[Pottiaceae]

**Literature:** Stark and Whittemore 1992; Zander 1977b.

**Illustrations:** Crum and Steere 1958; Zander 1993.

**Geographic subdivisions:** DMoj, DSon, GV, SN, SW.

**Selected specimens:** Inyo Co.: Trail Canyon, Panamint Mountains, Death Valley National Park, *York 2342* (CAS); Kern Co.: about 2 miles east of Lost Hills adjacent to Interstate 5 and about 200 m southeast of junction with Highway 46, *Taylor 14747* (UC); Riverside Co.: road to Twentynine Palms about 8 miles west of Desert Center, *Norris 57932*; San Diego Co.: Santa Margarita Ecological Reserve, SDSU, *Kellman 1395 & 1400* (CAS); Tulare Co.: Elk Creek near Potwisha Campground, Sequoia National Park, *Norris, Shevock, & Barahona 87574*; road to Buckeye Campground, Sequoia National Park, *Norris, Shevock, & Barahona 87604*.

***Crossidium squamiferum* (Viviani) Juratzka**  
[Pottiaceae]

**Literature:** Kellman 2003; Koch 1950a. As *Barbula chloronotos* Lesquereux 1868; Watson 1880. As *Crossidium griseum* Flowers 1973; Koch 1950a. As *Crossidium squamiferum* var. *pottioideum* Harpel 1980a; Harthill et al. 1979; Toren 1977. As *Tortula membranifolia* Coville 1893.



**Illustrations:** Delgadillo 1975; Dirkse and Bouman 1995; Flowers 1973; Ignatov and Ignatova 2003; Sharp et al. 1994; Zander 1993.

**Geographic subdivisions:** CW, DMoj, DSon, NW, SN, SNE, SW.

**Selected specimens:** Contra Costa Co.: Donner Canyon, Mt. Diablo State Park, *Shevock & Ertter* 20332; Fresno Co.: Warthan Creek about 7 miles west southwest of Coalinga, *Norris* 55132; Inyo Co.: Eco Canyon west of Inyo Mine, Death Valley National Park, *York* 2496 (CAS); Kern Co.: Mesquite Canyon northwest of Garlock, El Paso Mountains, Mojave Desert, *Norris* 87143; Riverside Co.: Highway 74 at Bighorn Overlook, San Bernardino National Forest, *Norris* 57853; San Diego Co.: Borrego Palm Canyon, Anza Borrego State Park, Colorado Desert, *Norris* 50571; Trinity Co.: Highway 299 about 1 mile east of Del Loma, Shasta-Trinity National Forest, *Norris* 70691; Tulare Co.: Elk Creek near Potwisha Campground, Sequoia National Park, *Norris, Shevock, & Barahona* 87577; Ventura Co.: above Blue Rocks Springs, *Norris* 55429, 55437, 55440, & 55447.

***Crumia latifolia* (Kindberg) W. B. Schofield** [Pottiaceae]

**Literature:** Bourell 1981; Christy and Wagner 1996; Harthill et al. 1979; Long 1978; Mishler 1978; Schofield 1966a; Shevock and Toren 2001; Toren 1977; Yurky 1990, 1995. As *Merceya latifolia* Koch 1950a; Koch and Ikenberry 1954; Moxley 1928; Thomson and Ketchledge 1958. As *Scopelephila latifolia* Flowers 1973; Lawton 1971.

**Illustrations:** Flowers 1973; Lawton 1971; Schofield 1966a; Zander 1993.

**Geographic subdivisions:** CaR, CW, DMoj, DSon, NW, SN, SNE, SW.

**Selected specimens:** Butte Co.: near Bidwell Bar, Feather River, *Schofield* 23138 (MO); Humboldt Co.: Tish-Tang Campground south of Hoopa, *Norris* 47305; Kern Co.: Cache Creek east of Horse Canyon, southern Piute Mountains, *Shevock & Hare* 14909; Los Angeles Co.: Twin Falls at La Cienega Camp North Fork San Gabriel Canyon north of Azusa, Angeles National Forest, *F. & R. Drouet* 3471 (UC); San Bernardino Co.: Caruthers Canyon, New York Mountains, Mojave National Preserve, *Laeger & Davis* 1334 (CAS); Santa Barbara Co.: canyon about 1 mile south of Bates Canyon Campground, Los Padres National Forest, *Norris* 55380; Santa Clara Co.: Stevens Canyon Road just east of Eden Canyon Road junction, *Whittemore* 5110 (MO); Trinity Co.: Highway 36 about 4 miles east of Wildwood, Shasta-Trinity National Forest, *Norris* 73561.

**\**Cynodontium jeneri* (W. P. Schimper in Howie) Stirton** [Dicranaceae]

**Illustrations:** Lawton 1971; Nyholm 1987–1998; Smith 1978.

**Geographic subdivisions:** SN.

**Selected specimens:** Madera Co.: Miller Meadow

below Minarets Pack Station, Sierra National Forest, *Norris & Hillyard* 105543.

**\**Cynodontium tenellum* (Bruch & W. P. Schimper) Limpricht** [Dicranaceae]

**Illustrations:** Ignatov and Ignatova 2003; Lawton 1971.

**Geographic subdivisions:** SN.

**Selected specimens:** Tulare Co.: Paradise Creek Trail near Buckeye Campground, Middle Fork Kaweah River, Sequoia National Park, *Shevock* 15191.

***Dacryophyllum falcifolium* Ireland** [Hypnaceae]

**Literature:** Ireland 2004.

**Illustrations:** Ireland 2004.

**Geographic subdivisions:** CW.

**Selected specimens:** Monterey Co.: Old Coast Road near South Fork Little Sur River, El Sur Ranch, *Kellman* 3037 (CAS); Santa Cruz Co.: South Fork Fall Creek from Blue Cliff above Lime Kilns. Henry Cowell Redwoods State Park, *Kellman* 704 (CAS) and Empire Grade at Cave Gulch, U.C. Santa Cruz property, *Kellman & Shevock* 2671 (CAS).

***Dendroalsia abietina* (W. J. Hooker) E. Britton in Brotherus** [Cryphaeaceae]

**Literature:** Bourell 1981; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Long 1978; Manuel 1974; Mishler 1978; Showers 1982; Smith 1970; Spjut 1971; Thomson and Ketchledge 1958; Toren 1977; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Alsia abietina* Bradshaw 1926; Lesquereux 1868; Moxley 1928; Watson 1880. As *Alsia circinalis* Kingman 1912. As *Leptodon circinatus* Sullivant 1856.

**Illustrations:** Brotherus 1924–1925; Lawton 1971; Manuel 1974; Sharp et al. 1994; Sullivant 1856.

**Geographic subdivisions:** CaR, CW, NW, SN, SW.

**Selected specimens:** Del Norte Co.: Smith River along Highway 199 about 9 miles east of junction with Highway 101, Six Rivers National Forest, *Norris* 85025; El Dorado Co.: Highway 50 at Ice House Road, *Norris & Piippo* 82284; Santa Barbara Co.: near Bates Canyon Campground, *Norris* 55378; Santa Cruz Co.: Pine Mountain Trail, Big Basin Redwoods State park, *Kellman* 2510 (CAS); Siskiyou Co.: near Cook and Green Pass about 1 mile west of White Mountain, Klamath National Forest, *Norris* 50187; Tulare Co.: trail below Crystal Cave to Cascade Creek, Sequoia National Park, *Shevock, Whitmarsh, & Johnson* 17168.

**\**Dichelyma uncinatum* Mitten** [Fontinalaceae]

**Illustrations:** Lawton 1971; Welch 1960.

**Geographic subdivisions:** NW.

**Selected specimens:** Mendocino Co.: Outlet Creek about 2 miles south of Willits, *Norris* 67593, Little Outlet Creek Bridge at Highway 101 about 5 miles north of Willits, *Duell* 680 (UC).



***Dichodontium flavescens* (Dickson) Lindberg**

[Dicranaceae]

**Literature:** Howe 1897.**Illustrations:** Werner 2002.**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Alpine Co.: Silver Creek at Carson River, Toiyabe National Forest, *Norris* 78978; El Dorado Co.: South Fork American River, Highway 50 at Bridal Veil Falls, Eldorado National Forest, *Norris* 58415; Fresno Co.: Redwood Creek, Windy Gulch Grove, Sequoia National Forest, *Norris*, *Shevock*, & *York* 87947, 87951 and Dinkey Creek, Sierra National Forest, *Norris* 88208; Inyo Co.: Lone Pine Creek east of Movie Road, along Whitney Portal Road, *Norris* & *Shevock* 92912; Tulare Co.: near Atwell Mills Campground, East Fork Kaweah River, Sequoia National Park, *Norris* 46431 and Slate Mountain Botanical Area near junctions of Forest Trails 31E14 and 31E31, Sequoia National Forest, *Shevock* 15693.

**\**Dichodontium olympicum* Renaud & Cardot**

[Dicranaceae]

**Illustrations:** Lawton 1971.**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Mono Co.: Lundy Lakes Trail along Mill Creek below Lake Helen, Inyo National Forest, *Norris* 78864, 78887 & 78890; Siskiyou Co.: between Louise, O'Brien and Eastern Creeks on eastern slopes of Little Grayback, *Holmberg* 947 (UC); Tuolumne Co.: about 2 miles east of Tuolumne Meadows toward Tioga Pass, Yosemite National Park, *Norris* 100356.

***Dichodontium pellucidum* (Hedwig) W. P.****Schimper** [Dicranaceae]

**Literature:** Bourell 1981; Crum and Anderson 1981; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Jamieson 1969; Kellman 2003; Koch 1950a, 1951e; Koch and Ikenberry 1954; Long 1978; Showers 1982; Spjut 1971; Strid 1974; Tan and Schofield 1980; Thomson and Ketchledge 1958; Toren 1977.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Smith 1978; Werner 2002.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SW.

**Selected specimens:** Alpine Co.: Silver Creek at Carson River, Toiyabe National Forest, *Norris* 78978; Fresno Co.: Avalanche Creek at Cedar Grove, South Fork Kings River, Kings Canyon National Park, *Shevock* 13770; Humboldt Co.: Forest Road 5E21 at East Fork about 5 air miles north of Mad River, Six Rivers National Forest, *Norris* 83887; Lake Co.: beyond Towhead Flat, Mt. Sanhedrin, Mendocino National Forest, *Toren* 5077 (CAS); Riverside Co.: Middle Spring along Devils Slide Trail, San Jacinto Mountains, San Bernardino National Forest, *Harpel* 941 (pers. herb.); Shasta Co.: Highway 299 north side of Haynes Flat about

3 miles west of Burney, *Norris* 68563; Siskiyou Co.: Shadow Creek at Callahan about 6 miles northeast of Cecilville, Klamath National Forest, *Norris* 70552.

**\**Dicranella crispa* (Hedwig) W. P. Schimper**

[Dicranaceae]

**Illustrations:** Ignatov and Ignatova 2003; Lawton 1971; Smith 1978.

**Geographic subdivisions:** NW.

**Selected specimens:** Siskiyou Co.: mouth of West Fork Clear Creek, Siskiyou Mountains, Klamath National Forest, *Wheeler* 8281 (CAS, UC).

***Dicranella heteromalla* (Hedwig) W. P.****Schimper** [Dicranaceae]

**Literature:** Crum and Anderson 1981; Howe 1897; Jamieson 1969; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Shevock and Toren 2001; Yurky 1990, 1995. As *Dicranum heteromallum* Lesquereux 1868; Watson 1880.

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Del Norte Co.: trail between Requa and False Klamath Cove, Redwood National Park, *Norris* 24029 and Sanger Lake, Six Rivers National Forest, *Norris* 7773 & 7775; Glenn Co.: Cottonwood Glade east of Plaskett Meadows, Mendocino National Forest, *Norris* 47961; Humboldt Co.: Goose Creek, *Norris* 56531; Marin Co.: South Novato, *Jenkinson s.n.* (UC); Mendocino Co.: east of Highway 1 just south of Caspar, Pygmy Cypress Forest, *Tavares & Sharsmith* 732 (UC); San Francisco Co.: Mt. Davidson, *Shevock* 18928; Santa Cruz Co.: Waddell Creek near Redwoods Camp 2, Big Basin Redwoods State Park, *Kellman* 782 (CAS); Sonoma Co.: Bodega Marine Laboratory, *Norris* 103450.

**\**Dicranella hilariana* (Montagne) Mitten**

[Dicranaceae]

**Illustrations:** Crum and Anderson 1981; Grout 1928–1940; Sharp et al. 1994. As *Dicranum debile* Cardot and Thériot 1900; Sullivant 1864.

**Geographic subdivisions:** CW.

**Selected specimens:** Santa Cruz Co.: City of Capitola, *Kellman* 1052 (CAS) [determined by Frahm].

***Dicranella howei* Renaud & Cardot**

[Dicranaceae]

**Literature:** Cardot and Thériot 1900; Crundwell and Nyholm 1977; Howe 1896; Kellman 2003; Shevock and Toren 2001; Whitmore and Sommers 1999. Misapplied as *Anisothecium varium* Koch 1950a; Koch and Ikenberry 1954; Steere 1954; Steere et al. 1954. Misapplied as *Dicranella varia* Bourell 1981; Bradshaw 1926; Crum and Anderson 1981; Harpel 1980a; Harthill et al. 1979; Jamieson 1969; Lawton 1971; McCleary 1972; Mishler 1978; Sayre 1940; Shevock and Toren 2001; Toren 1977;

Yurky 1990, 1995. Misapplied as *Dicranum varium* Lesquereux 1868; Watson 1880. As *Dicranella rubra* Millspaugh and Nuttall 1923. As *Dicranum palustre* Lesquereux 1868.

**Illustrations:** Crundell and Nyholm 1977; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Butte Co.: opposite spillway of Oroville Dam, *Norris* 52580; Fresno Co.: Peterson Mill Road at junction with Forest Roads 10S18 & 10S43, about 6 miles east of Highway 168, Sierra National Forest, *Shevock & York* 14970; Humboldt Co.: Humboldt Bay at foot of L Street, Eureka, *Norris* 57794; Lake Co.: Erickson Ridge Road to Mt. Sanhedrin, Mendocino National Forest, *Toren* 5085 (CAS); Nevada Co.: Washington Road, 2.7 miles from Highway 20, Tahoe National Forest, *Shevock & Toren* 20713; San Francisco Co.: Coastal Bluff Trail, Golden Gate National Recreation Area, *Shevock* 18806; Santa Cruz Co.: Eagle Creek below Columbine Trail Crossing, Henry Cowell Redwoods State Park, *Kellman* 631 (CAS).

**\**Dicranella pacifica* W. B. Schofield**

[Dicranaceae]

**Illustrations:** Lawton 1971.

**Notes:** See Schofield (1970) for a table of characters separating *D. pacifica* from *D. varia*.

**Geographic subdivisions:** NW.

**Selected specimens:** Del Norte Co.: Bear Basin Butte, Six Rivers National Forest, *Norris* 8095.

**\**Dicranella palustris* (Dickson) Crundwell ex.**

**Warburg** [Dicranaceae]

**Illustrations:** Crum and Anderson 1981; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** NW.

**Selected specimens:** Siskiyou Co.: Long Gulch Lake southwest of Callahan, Klamath National Forest, *Norris* 57476.

**\**Dicranella rufescens* (Withering) W. P.**

**Schimper** [Dicranaceae]

**Illustrations:** Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Calaveras Co.: about 1 mile west of Salt Springs Reservoir, Stanislaus National Forest, *Norris & Shevock* 103254; Lake Co.: Library Park, City of Lakeport, *Toren* 8430 (CAS) and *Toren & Shevock* 8514 (CAS) [determined by Allen]; Mendocino Co.: location not specified beyond T12N, R13W, sections 21–23, *Hamilton* 87 (UC).

**\**Dicranella schreberiana* (Hedwig) Hilfert ex**

**H. Crum & Anderson** [Dicranaceae]

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971.

**Geographic subdivisions:** NW.

**Selected specimens:** Humboldt Co.: slopes about 2.5 miles from Highway 299 at Redwood Valley,

*Duell* 1891 (UC) and above South Quarry Road off Jacoby Creek Road near Arcata, *Norris* 57660.

***Dicranella subulata* (Hedwig) W. P. Schimper**  
[Dicranaceae]

**Literature:** Crum and Anderson 1981; Koch 1950a; Lawton 1971. As *Dicranum subulatum* Lesquereux 1868; Watson 1880.

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971.

**Geographic subdivisions:** NW.

**Selected specimens:** Humboldt Co.: Van Duzen River floodplain about 3 miles east of Carlotta, *Norris* 19604 and Salmon Creek Road about 3 miles above mouth of Salmon Creek, *Nomura & Kirn* 79 (UC).

***Dicranoweisia cirrata* (Hedwig) Lindberg in Milde** [Seligeriaceae]

**Literature:** Bourell 1981; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Jamieson 1969; Kellman 2003; Kingman 1912; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux and James 1884; Long 1978; Mishler 1978; Moxley 1928; Shevock and Toren 2001; Showers 1982; Sigal 1975; Smith 1970; Spjut 1971; Steere et al. 1954; Toren 1977; Yurky 1990, 1995. As *Weissia cirrata* Lesquereux 1868; Sullivant 1856; Watson 1880.

**Illustrations:** Flowers 1956; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SN, SW.

**Selected specimens:** Lake Co.: Clear Lake State Park, *Norris* 47731; Plumas Co.: forest campsite along Highway 24 and North Fork Feather River, *Koch* 1873 (UC); Riverside Co.: Riverside County Park near Idyllwild, San Jacinto Mountains, *Harpel* 1465 (pers. herb.); San Francisco Co.: Mt. Sutro, *Shevock* 19180; Santa Barbara Co.: Orcutt Hill, *Bratt s.n.* (SBBG); Santa Cruz Co.: Zayante Canyon Road about 4 miles south of Summit Road north of Felton, Santa Cruz Mountains, *Norris* 86868; Siskiyou Co.: Soda Creek Road about 4 miles northeast of Highway 5 near Dunsuir, Shasta-Trinity National Forest, *Norris* 84791; Tulare Co.: County Road M-220 at Bear Creek, Sequoia National Forest, *Norris, Shevock, & Barahona* 87651.

***Dicranoweisia contermina* Renauld & Cardot**  
[Seligeriaceae]

**Literature:** Howe 1897; Koch 1950a. Misapplied in California as *Dicranoweisia crispula* Bradshaw 1926; Flowers 1973; Lesquereux and James 1884; Showers 1982; Spjut 1971; Strid 1974. As *Dicranoweisia crispula* var. *contermina* Holmberg 1969; Lawton 1971; McGrew 1976.

**Notes:** *Dicranoweisia crispula* has historically been reported for California, however, based on our examination of the specimens residing in California herbaria, we view these plants, primarily of rock outcrops, to be *Dicranoweisia contermina*. We ex-



pect *Dicranoweisia crispula* to be located within the Sierra Nevada. See Appendix III for more information.

**Illustrations:** Crum and Anderson 1981; Flowers 1956, 1973; Ireland 1982; Lawton 1971.

**Geographic subdivisions:** CaR, MP, NW, SN, SNE.

**Selected specimens:** Modoc Co.: Big Valley Mountains, *Baker & Nutting s.n.* (UC); Placer Co.: Bowman Lake Road at Grouse Mountain Road west of Truckee, Tahoe National Forest, *Norris 76983*; Siskiyou Co.: near Monument Lake, Marble Mountain Wilderness, Klamath National Forest, *Norris & Spjut 12453*; Trinity Co.: slopes above Lake Eleanor west of Trinity Center, *Norris 76881*; Tulare Co.: Crabtree Meadows near Mount Whitney, Sequoia National Park, *Shevock 18546*.

***Dicranum fuscescens* Turner** [Dicranaceae]

**Literature:** Bourell 1981; Crum and Anderson 1981; Holmberg 1969; Jamieson 1969; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Shevock and Toren 2001; Showers 1982; Smith 1970; Spjut 1971; Toren 1977; Watson 1880; Yurky 1990, 1995.

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Del Norte Co.: Stony Creek about 1 mile north of Gasquet, Six Rivers National Forest, *Norris & Piippo 82459*; Humboldt Co.: Foothill Trail, Prairie Creek Redwood State Park, *Norris 46007*; Lake Co.: east slope of Garrett Mountain, Mendocino National Forest, *Toren 7171* (CAS); Mendocino Co.: Comptche Road about 3 miles east of Mendocino, Pygmy Cypress Forest, *Norris 10739* (determined by Peterson); Santa Cruz Co.: West Waddell Creek, Big Basin Redwoods State Park, *Kellman 2479* (CAS); Siskiyou Co.: near Cook and Green Pass about 1 mile west of White Mountain, Klamath National Forest, *Norris 50196*; Tuolumne Co.: Dodds, Strawberry Lake near Pinecrest, Stanislaus National Forest, *Morse 1934* (UC) [determined by Peterson].

***Dicranum howellii* Renauld & Cardot**

[Dicranaceae]

**Literature:** Bourell 1981; Howe 1896; Kellman 2003; Lawton 1971; Shevock and Toren 2001; Toren 1977. Misapplied as *Dicranum scoparium* Holmberg 1969; Jamieson 1969; Koch 1950a; Koch and Ikenberry 1954; Lesquereux 1868; Spjut 1971; Watson 1880; Yurky 1995. As *Dicranum bonjeanii* Holmberg 1969; Koch 1950a, 1951e; Spjut 1971; Yurky 1990.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Butte Co.: about 2 miles northeast of Forbestown, Plumas National Forest, *Dillingham 1011* (CAS) and arm of Oroville Lake near Bloomer Hill, *Janeway 7745* (UC); Del Norte

Co.: Whiskey Lake, Six Rivers National Forest, *Norris 83369*; Humboldt Co.: Emerald Creek east of Orick, *Norris 24591*; Mendocino Co.: Eel River about 3 miles south of Piercy, *Norris 72142*; San Francisco Co.: Mt. Davidson, *Shevock 19290*; Santa Cruz Co.: Whites Lagoon, Forest of Nisene Marks State Park, *Kellman 774* (CAS); Shasta Co.: Soda Creek Road about 3 miles northeast of Highway 5 near Dunsmuir. Shasta-Trinity National Forest, *Norris 84783*; Siskiyou Co.: Clear Creek below Young's Valley, *Norris & Ignatov 74747*; Trinity Co.: Hennessy Ridge Road about 1 mile west of eastern border of Six Rivers National Forest, *Norris 77269*.

***Dicranum scoparium* Hedwig** [Dicranaceae]

**Literature:** Lawton 1971.

**Illustrations:** Abramov and Volkova 1998; Ignatov and Ignatova 2003; Lawton 1971.

**Notes:** Although attributed to California in the bryological literature, all but one of the California specimens we examined labeled as *Dicranum scoparium* are actually *D. howellii*.

**Geographic subdivisions:** NW.

**Selected specimens:** Siskiyou Co.: Granite Creek between Tikner Creek and Blue Granite, *Norris 52329*.

**\**Dicranum sulcatum* Kindberg in Macoun**

[Dicranaceae]

**Illustrations:** Peterson 1979.

**Geographic subdivisions:** CaR, CW, NW.

**Selected specimens:** Del Norte Co.: Highway 199 at Elk Valley Campground near Oregon border, Siskiyou National Forest, *Norris 9848*; Humboldt Co.: Ten Taypo Trail, Prairie Redwoods State Park, *Norris 56794*; Marin Co.: trail near Mud Lake, Point Reyes National Seashore, *Norris 71828*; Mendocino Co.: about 5 miles east of Albion, Pygmy Cypress Forest, *Norris 11791* and Gibney Lane about 1.2 miles east of Highway 1 near Fort Bragg, *Becking s.n.* (UC); Siskiyou Co.: between Louise and Indian Creek, slopes of Little Grayback, Klamath National Forest, *Holmberg 948* (UC).

**\**Dicranum undulatum* Schrader ex Bridel**

[Dicranaceae]

**Illustrations:** Lawton 1971.

**Notes:** The occurrence of this species in California is viewed as a recent introduction that may spread to other areas in the San Francisco Bay Area.

**Geographic subdivisions:** CW.

**Selected specimens:** Alameda Co.: U. C. Berkeley Campus, Valley Life Sciences Building, *Kersh & Norris 4* (UC) and *Shevock 21626* (confirmed by Ireland).

***Didymodon australasiae* (W. J. Hooker & Greville) Zander** [Pottiaceae]

**Literature:** Shevock and Toren 2001. As *Trichostomopsis brevifolia* Bartram 1931; Harthill et al. 1979; Koch 1950a, 1951e; McCleary 1972; Steere



1954. As *Trichostomopsis diaphanobasis* Harthill et al. 1979. As *Trichostomopsis faye* Harthill et al. 1979; Koch 1950a; McCleary 1972; Steere 1954. As *Trichostomopsis australasiae* Lawton 1971.

**Illustrations:** Allen 2002; Bartram 1931; Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** CW, DMOj, DSON, SW.

**Selected specimens:** Inyo Co.: Titus Canyon, Death Valley National Park, *Norris 10206f*; Kern Co.: Sand Canyon Road just north of Highway 58, *Shevock 13237*; Lake Co.: Chalk Mountain north of Cache Creek, *Toren & Dearing 7310* (CAS); Los Angeles Co.: San Fernando Valley, *MacFadden 21719* (MO); Riverside Co.: Snakeye Springs, Indian Cove, Joshua Tree National Park, *Norris 57992*; San Diego Co.: Box Canyon, Anza Borrego State Park, Colorado Desert, *Norris 50630*; San Francisco Co.: Golden Gate Park, *Shevock 18896* (determined by Zander); San Luis Obispo Co.: about 1 mile west of Poso Grade, *Norris 55215*; Tuolumne Co.: along Highway 120 about 5 miles below Jamestown, *Ikenberry 394* (MO) [determined by Grout].

***Didymodon brachyphyllus* (Sullivant in Whipple) Zander [Pottiaceae]**

**Literature:** Kellman 2003. As *Barbula brachyphylla* Harpel 1980a; Harthill et al. 1979; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Long 1978; McCleary 1972; Mishler 1978; Sayre 1940; Spjut 1971; Steere 1954; Steere et al. 1954; Sullivant 1856; Toren 1977; Watson 1880; Yurky 1990. As *Didymodon vinealis* var. *brachyphyllus* Yurky 1995.

**Illustrations:** Lawton 1971; Mogensen and Zander 1999; Sharp et al. 1994; Zander and Ochrya 2001.

**Geographic subdivisions:** CW, NW, SN, SNE, SW.

**Selected specimens:** Contra Costa Co.: Vasco Caves Preserve, East Bay Regional Parks, *Shevock, O'Brien, & Jessup 15025* (determined by Zander); Lake Co.: Highway 20 about 10 miles east of Highway 53 junction, *Toren & Dearing 7317* (CAS) [confirmed by Zander]; Marin Co.: Shell Beach Trail, *Yurky 325* (SFSU); Riverside Co.: Garnet Queen Creek, Santa Rosa Mountains, *Harpel 2355* (pers. herb.); San Diego Co.: French Creek, Palomar Mountains, *Stark 771* (MO); Tulare Co.: Highway 190 at Soda Creek near Moorehouse, Sequoia National Forest, *Shevock 15650* (determined by Zander); Ventura Co.: San Nicolas Island, *Weber & Bratt 100684* (MO).

***Didymodon eckeliae* Zander [Pottiaceae]**

**Literature:** Zander 2001.

**Illustrations:** Zander 2001.

**Geographic subdivisions:** SW.

**Selected specimens:** San Diego Co.: about 13 km northeast of Lakeside, Barona Indian Reservation, *Wiggins s.n.* (NY).

***\*Didymodon fallax* (Hedwig) Zander [Pottiaceae]**

**Illustrations:** Ignatov and Ignatova 2003. As *Barbula fallax* Crum and Anderson 1981; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CW.

**Selected specimens:** Alameda Co.: Berkeley, *Morse s.n.* (NY); Santa Clara Co.: Big Basin Way, Highway 9 about 1 mile from Saratoga, *Duell 2148* (NY) [determined by Zander].

***\*Didymodon ferrugineus* (W. P. Schimper ex Bescherele) M. O. Hill [Pottiaceae]**

**Illustrations:** Allen 2002; Ignatov and Ignatova 2003.

**Geographic subdivisions:** CaR, NW.

**Selected specimens:** Siskiyou Co.: Mud Creek Dam along Forest Road 40N56, southeast slopes of Mt. Shasta, Shasta-Trinity National Forest, *Norris & Hillyard 104089*.

***Didymodon insulanus* (De Notaris) M. O. Hill [Pottiaceae]**

**Literature:** Shevock and Toren 2001. As *Barbula cylindrica* Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Kingman 1912; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lesquereux 1868; Lesquereux and James 1884; Long 1978; McCleary 1972; Mishler 1978; Sayre 1940; Steere 1954; Toren 1977; Yurky 1990, 1995. As *Barbula flexifolia* Brandegees 1891; Lesquereux and James 1884. As *Barbula insulana* Lesquereux 1868. As *Barbula subfallax* Brandegees 1891; Kingman 1912; Lesquereux 1868; Lesquereux and James 1884; Millspaugh and Nuttall 1923. As *Barbula virescens* Brandegees 1891; Lesquereux and James 1884. As *Didymodon vinealis* var. *flaccida* Lawton 1971; Whittemore and Sommers 1999; Yurky 1990, 1995.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CW, SN.

**Selected specimens:** Alameda Co.: Little Yosemite Canyon View Trail, Sunol Regional Park, *Whittemore 5428b* (MO); El Dorado Co.: Bridal Veil Falls, Highway 50, Eldorado National Forest, *Whittemore 4000* (MO); San Mateo Co.: Sylvan Trail, Edgewood County Park, *Whittemore & Sommers 5259* (MO); Santa Cruz Co.: Rincon Gorge, Henry Cowell Redwoods State Park, *Kellman 363* (CAS); Tulare Co.: Belknap Grove near Camp Nelson, Middle Fork Tule River, Sequoia National Forest, *Norris 50902*.

***Didymodon nicholsonii* Culmann [Pottiaceae]**

**Literature:** Kellman 2003; Shevock and Toren 2001. As *Didymodon vinealis* var. *nicholsonii* Showers 1982.

**Illustrations:** Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SN, SW.

**Selected specimens:** Alameda Co.: Little Yosemite Canyon View Trail, Sunol Regional Park, *Whitte-*

more 5452 (MO); Butte Co.: North Fork Feather River Canyon above Highway 70, Plumas National Forest, *Janeway 5370* (MO); Fresno Co.: Deer Cove Creek adjacent to Highway 180, South Fork Kings River, Sequoia National Forest, *Shevock 12457*; Lake Co.: near Lake Pillsbury, Mendocino National Forest, *Toren 7138a* (BUF, CAS) [confirmed by Zander]; Riverside Co.: Santa Rosa Mountain, *Norris 57875*; Santa Cruz Co.: Laguna Creek, *Kellman 1522* (CAS); Sonoma Co.: Wolf Creek Road about 4 miles east of Gualala River, *Norris 86944*.

***Didymodon norrisii* Zander** [Pottiaceae]

**Literature:** Kellman 2003; Zander 1999.

**Illustrations:** Zander 1999.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Contra Costa Co.: near Castle Rocks, Mt. Diablo State Park, *Shevock & Ertter 20347*; Humboldt Co.: near Kneeland, *Norris 7884* (BUF, UC); Lake Co.: Manning Creek, Highway 175 about 4 miles west of Lakeport, *Toren, Bourell, Dearing, & Shevock 6940* (CAS) and *Toren 7402* (CAS), Hell's Peak near Blue Lakes, *Toren 636* (CAS), The Slides west of Lake Pillsbury, Mendocino National Forest, *Toren 7534* (CAS) [determined by Zander], *Shevock, Ertter, Toren, & Dearing 19488*, and Bartlett Mountain Road at High Valley Ridge, Mendocino National Forest, *Norris 10606*; Madera Co.: Forest Highway 81 between Fish Creek and Slide Creek, Sierra National Forest, *Shevock & Norris 19785*; Nevada Co.: road to Downieville about 3 miles from Nevada City, *Norris 67384*; Santa Cruz Co.: Eagle Rock Lookout Tower near Bonny Doon, *Kellman 890* (CAS); Tehama Co.: Hogback Road about 4 miles east of Highway 99, *Shevock & Ertter 22251*; Tulare Co.: near Brush Creek along Kern River, Sequoia National Forest, *Toren 7936* (CAS); Tuolumne Co.: Highway 108 east of Long Barn, 6.1 miles east of Mi-Wok Ranger Station, Stanislaus National Forest, *Shevock 18586* (determined by Toren).

***Didymodon occidentalis* Zander** [Pottiaceae]

**Literature:** Whittemore and Sommers 1999. As *Barbula rubiginosa* Harthill et al. 1979; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Spjut 1971; Toren 1977.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CW, NW, SN.

**Selected specimens:** Colusa Co.: Highway 20 at milepost 74, *Norris 52515, 52522, & 52526*; Contra Costa Co.: Mitchell Canyon, Mt. Diablo State Park, *Norris 100606*; Fresno Co.: Warthan Creek about 7 miles southwest of Coalinga, *Norris 55124*; Kern Co.: Round Mountain Road, 5.79 miles east of junction with Granite Road and 1.9 miles west of Eastmont Road, north of Oildale, *Shevock 14841*; San Luis Obispo Co.: near Black Mountain and Navajo Camp about 1.5 miles west of road junction, *Norris 55244*.

***Didymodon revolutus* (Cardot) R. S. Williams** [Pottiaceae]

**Literature:** As *Husnotiella revoluta* Bartram 1926; Grout 1928–1940; Harthill et al. 1979; Koch 1949a, 1950a; Koch and Ikenberry 1954.

**Illustrations:** Allen 2002; Crum and Anderson 1981; Sharp et al. 1994.

**Geographic subdivisions:** CW, MP, SN.

**Selected specimens:** Contra Costa Co.: Pine Canyon near Castle Rocks, Mt. Diablo State Park, *Norris 100792*; Lassen Co.: Highway 139 about 16 miles south of Adin, *Norris 21462 & 21466*; Modoc Co.: Alturas, North Fork Pit River, *Richards & Drouet 1263* (UC); Placer Co.: American River Canyon at junction of Highway 49 and Foresthill Road, *Whittemore 4339* (MO); San Luis Obispo Co.: Boy Scout Road about 1 mile east of Twin Bridges, Camp Roberts Military Reservation, *Norris 100885*; Sonoma Co.: Adobe Canyon, *Koch 285* (UC) and near Kenwood, *Koch s.n.* (MO) [determined by Bartram]; Tulare Co.: Limestone Campground, Kern River Canyon, Sequoia National Forest, *Norris, Shevock, & Barahona 87102*; Tuolumne Co.: about 5 miles below Jamestown, *Ikenberry 394* (CAS) [determined by Koch].

***Didymodon rigidulus* Hedwig** [Pottiaceae]

**Literature:** Bourell 1981; Flowers 1973; Kellman 2003; Lawton 1971; Shevock and Toren 2001; Sigal 1975; Yurky 1990, 1995. As *Barbula acuta* Koch 1950a; Lawton 1971. As *Barbula rigidula* Kingman 1912; Harthill et al. 1979; Koch 1950a; Long 1978; Watson 1880. As *Didymodon mexicanus* var. *subulatus* Harthill et al. 1979; McCleary 1972. As *Didymodon rigidulus* var. *icmadophilus* Zander 1981b, 1993. As *Trichostomum rigidulum* Lesquereux 1868; Lesquereux and James 1884; Moxley 1928.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978; Zander 1993.

**Geographic subdivisions:** CW, NW, SN, SW.

**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris 87188*; Fresno Co.: divide above Boyden Cave, Monarch Wilderness, Sequoia National Forest, *Shevock & York 12330* and Warthan Creek about 7 miles west southwest of Coalinga, San Joaquin Valley, *Norris 55135*; Lake Co.: Highway 53 about 1 mile south of Highway 20, *Norris 47687*; Marin Co.: Bootjack Trail, Mt. Tamalpais State Park, *Yurky 860* (SFSU); San Benito Co.: Clear Creek, San Benito Mountain, BLM Clear Creek Recreation Area, *Shevock, Norris, & Hamon 20303* (determined by Zander); San Bernardino Co.: Highway 40 about 15 miles east of Barstow, Mojave Desert, *Norris 68082*; San Diego Co.: Matagual Creek, Volcan Mountains, *Stark 611* (BUF); San Francisco Co.: Golden Gate Park, *Shevock 19515*; Siskiyou Co.: Elk Creek at Malone Creek south of Happy Camp, *Norris 52250*.



***Didymodon tophaceus* (Bridel) Lisa** [Pottiaceae]

**Literature:** Crum and Anderson 1981; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Kingman 1912; Koch 1950a; Lawton 1971; Long 1978; McCleary 1972; Millspaugh and Nuttall 1923; Mishler 1978; Shevock and Toren 2001; Sigal 1975; Steere 1954; Toren 1977; Yurky 1990, 1995. As *Desmatodon hendersonii* Koch 1950a; McCleary 1972; Millspaugh and Nuttall 1923; Steere 1954; Steere et al. 1954. As *Trichostomum tophaceum* Lesquereux 1868; Lesquereux and James 1884; Sullivant 1856; Watson 1880.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CW, DMOj, DSON, NW, SN, SNE, SW.

**Selected specimens:** Fresno Co.: just below bridge crossing of Highway 180 at Boyden Cave, Sequoia National Forest, *Shevock 12459*; Inyo Co.: Cottonwood Canyon, Cottonwood Mountains, Death Valley National Park, *Shevock, Kellman, York, & Knaus 20559*; Napa Co.: near Lake Berryessa about 4 miles east of Pope Valley, *Norris 48257*; Nevada Co.: Washington Road about 2.5 miles from Highway 20, Tahoe National Forest, *Shevock & Toren 20711*; Riverside Co.: Bay Tree Springs, San Jacinto Mountains, San Bernardino National Forest, *Harpel 1848* (pers. herb.); Santa Barbara Co.: La Jolla Vieja Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock & Rodriguez 20867*; Santa Clara Co.: Alum Rock Park, San Jose, *Schofield 12697* (UC); Siskiyou Co.: Sawyers Bar to Forks of the Salmon Road about 2 miles east of Forks of the Salmon, *Norris 22760*.

***Didymodon umbrosus* (C. Müller Hal.) Zander** [Pottiaceae]

**Literature:** Shevock and Toren 2001.

**Illustrations:** Eckel 1986; Sharp et al. 1994.

**Geographic subdivisions:** CW.

**Selected specimens:** San Francisco Co.: Aqua Vista Park, China Basin, San Francisco, *Shevock 18997* (determined by Zander).

***Didymodon vinealis* (Bridel) Zander** [Pottiaceae]

**Literature:** Kellman 2003; Koch and Ikenberry 1954; Shevock and Toren 2001; Showers 1982; Whittemore and Sommers 1999. As *Barbula bakeri* Cardot and Thériot 1904. As *Barbula semitorta* Kingman 1912; Lesquereux 1868; Lesquereux and James 1884; Sullivant 1856. As *Barbula vinealis* Bourell 1981; Bradshaw 1926; Brandege 1891; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Jamieson 1969; Koch 1950a, 1951e; Lawton 1971; Lesquereux and James 1884; Long 1978; McCleary 1972; Millspaugh and Nuttall 1923; Mishler 1978; Moxley 1928; Sigal 1975; Smith 1970; Spjut 1971; Steere 1954; Steere et al. 1954; Sullivant 1856; Thomson and Ketchledge 1958; Toren 1977; Watson 1880. Probably misapplied as *Barbula arcto-*

*carpa* Millspaugh and Nuttall 1923; Lesquereux and James 1884. As *Tortula elata* Brandege 1891.

**Illustrations:** Allen 2002; Ignatov and Ignatova 2003; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, DMOj, DSON, GV, MP, NW, SN, SNE, SW.

**Selected specimens:** Fresno Co.: Marble Falls Trail above Potwisha Campground, Marble Fork Kaweah River, Sequoia National Park, *Shevock 12951*; Humboldt Co.: Forest Road 5E21 at East Fork about 5 air miles north of Mad River, Six Rivers National Forest, *Norris 83890*; Mariposa Co.: road to Big Sandy about 2 miles east of Fish Camp, Sierra National Forest, *Norris 85337*; Santa Barbara Co.: canyon about 1 mile south of Bates Canyon Campground, *Norris 55357*; Shasta Co.: County Road A17 at junction of road to Black Butte, *Norris 23746*; Tulare Co.: Dark Canyon along Forest Road 24S05 just south of White River Campground, Sequoia National Forest, *Shevock 14300* and Mineral King Road, 0.5 mile east of Silver City, Sequoia National Park, *Shevock 17665* (determined by Zander).

***\*Discelium nudum* (Dickson) Bridel** [Disceliaceae]

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Lawton 1971.

**Geographic subdivisions:** NW.

**Selected specimens:** Del Norte Co.: between False Klamath Cove and Requa, Redwood National Park, *Norris 24047, 70386 & 70723*; Humboldt Co.: Patrick's Point near Arcata, *Schofield 16971* (UBC).

***Distichium capillaceum* (Hedwig) Bruch & W.**

**P. Schimper** [Ditrichaceae]

**Literature:** Crum and Anderson 1981; Koch 1949a, 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Showers 1982; Watson 1880.

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Ochrya 1998a; Seppelt 1982; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, MP, NW, SN, SNE.

**Selected specimens:** Alpine Co.: Winnemucca Lake, Mokelumne Wilderness, Eldorado National Forest, *Norris 71269*; Inyo Co.: South Fork Bishop Creek, 4.2 miles south of Highway 168 on South Lake Road, Inyo National Forest, *Shevock 12546*; Modoc Co.: above Patterson Lake, South Warner Wilderness, Modoc National Forest, *Harpel 2271* (pers. herb.); Mono Co.: Lundy Lakes Trail below Helen Lake, Inyo National Forest, *Norris 78888*; Siskiyou Co.: Taylor Lake, Klamath National Forest, *Norris 83410*.

***Distichium inclinatum* (Hedwig) Bruch & W. P. Schimper** [Ditrichaceae]

**Literature:** Koch 1950a; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Showers 1982; Watson 1880.



**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, SN, SNE.

**Selected specimens:** Alpine Co.: Winnemucca Lake, Mokelumne Wilderness, Eldorado National Forest, *Norris 71260*; Fresno Co.: between Twin Lakes and Round Meadow, Kaiser Wilderness, Sierra National Forest, *Shevock & Clines 21406*; Inyo Co.: slopes above Treasure Lake west of Big Pine, John Muir Wilderness, Inyo National Forest, *Norris 46967*; Long Lake along Rock Creek Trail toward Morgan Pass, John Muir Wilderness, Inyo National Forest, *Shevock 13823*; Mono Co.: Mildred Lake, John Muir Wilderness, Inyo National Forest, *Norris 71400*; Tulare Co.: Primrose Lake, Sequoia National Park, *J.T. Howell s.n.* (CAS).

***Ditrichum ambiguum* Best** [Ditrichaceae]

**Literature:** Bourell 1981; Crum and Anderson 1981; Holmberg 1969; Jamieson 1969; Kellman 2003; Koch 1950a, 1951e; Lawton 1971; Shevock and Toren 2001; Spjut 1971; Toren 1977; Yurky 1990, 1995.

**Illustrations:** Crum and Anderson 1981; Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Glenn Co.: about 0.5 mile north of Lone Star Camp, *Norris 47970*; Humboldt Co.: Coyote Peak on Bald Hills Road, *Norris 22341*; Lake Co.: Forest Road 18N34, about 1 mile east of The Slides west of Lake Pillsbury, Mendocino National Forest, *Toren & Bourell 5047* (CAS); Mendocino Co.: Ornbaun Creek near Mountain View Road, *Norris 53183*; Santa Cruz Co.: Ice Cream Grade, 1.6 miles west of junction with Empire Grade, *Whittemore 4439* (MO); Sonoma Co.: Gualala River near Soda Spring, *Norris 86983*; Trinity Co.: Rattlesnake Creek at Hell Gate Campground east of Forest Glen, *Norris 23817*; Tulare Co.: Clover Creek off of General's Highway, Marble Fork Kaweah River, Sequoia National Park, *Shevock 15631* (determined by Toren).

***Ditrichum heteromallum* (Hedwig) E. Britton**

[Ditrichaceae]

**Literature:** Jamieson 1969; Koch 1950a; Spjut 1971.

**Illustrations:** Ignatov and Ignatova 2003; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Humboldt Co.: James Irvine Trail, Prairie Creek Redwood State Park, *Jamieson 195* (UC) and Big Lagoon, *Glade s.n.* (MO); Lake Co.: Manning Creek, Highway 175 about 4 miles west of Lakeport, *Toren 7339* (CAS); Monterey Co.: Mill Creek Picnic Area, *Norris 48568*.

***Ditrichum montanum* Leiberg** [Ditrichaceae]

**Literature:** Spjut 1971.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, NW.

**Selected specimens:** Humboldt Co.: near Round Prairie about 3 miles north of Highway 299, *Norris 52896*; Siskiyou Co.: Haypress Meadows, Marble Mountain Wilderness, Klamath National Forest, *Norris 12321*, Marble Valley Guard Station along trail to Paradise Lake, *Spjut 1185* (UC) and Doe Creek, *Norris 23064*.

***\*Ditrichum pusillum* (Hedwig) Hampe**

[Ditrichaceae]

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Humboldt Co.: Coyote Peak on Bald Hills Road, *Norris 22351*; Placer Co.: Canyon Creek near Dutch Flat, *MacFadden 9612* (MO).

***Ditrichum schimperi* (Lesquereux) Kuntze**

[Ditrichaceae]

**Literature:** Holmberg 1969; Howe 1897; Kellman 2003; Koch 1950a; Lawton 1971; Shevock and Toren 2001; Smith 1970; Steere et al. 1954; Yurky 1990, 1995. As *Leptotrichum schimperi* Lesquereux 1868; Lesquereux and James 1884; Watson 1880.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CW, NW, SN.

**Selected specimens:** Calaveras Co.: South Comanche shore near Burson, *Steen 840326-3* (MO); Del Norte Co.: Bear Basin Butte, *Norris 8106*; Marin Co.: Inverness Ridge above Inverness, *J.T. Howell s.n.* (CAS, UC); Lake Co.: sulfur hot springs near Anderson Springs, *Toren & Dearing 7254* (CAS); Mariposa Co.: Highway 140 at Slate Creek Bridge, *Shevock & Toren 22483*; Mendocino Co.: Pygmy Forest along County Road 409 about 1 mile east of Highway 1 south of Fort Bragg, *Norris 11722*; San Francisco Co.: Mt. Davidson, *Shevock 18926*; San Mateo Co.: Flume Trail west of Nature Center, Filoli, north of Woodside, *Whittemore 4399* (MO); Santa Cruz Co.: Sempervirens Falls, Big Basin Redwood State Park, *Koch 2063* (UC) and Henry Cowell Redwoods State Park, *Kellman 595* (UC).

***Drepanocladus aduncus* (Hedwig) Warnstorf**

[Campyliaceae]

**Literature:** Bourell 1981; Bradshaw 1926; Harthill et al. 1979; Ireland 1982; Janssens 1983; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Long 1978; Shevock and Toren 2001; Showers 1982; Spjut 1971; Toren 1977; Wynne 1944; Żarnowiec 2001. As *Hypnum aduncum* Brandegees 1891; Coville 1893; Lesquereux 1868; Sullivant 1856; Watson 1880.

**Illustrations:** Buck 1998; Flowers 1973; Hedenäs 1987, 1993a; Ireland 1982; Janssens 1983; Kanda 1978; Koponen et al. 1995; Lawton 1971; Sharp et al. 1994; Smith 1978; Żarnowiec 2001.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SNE, SW.

**Selected specimens:** Humboldt Co.: near McClellan Mountain about 5 miles east of Bridgeville, *Norris* 45814; Lake Co.: near Upper Nye Camp north of Snow Mountain Wilderness boundary, Mendocino National Forest, *Shevock, Bourell, & Toren* 15844 (CAS); Modoc Co.: Big Sage Reservoir north of Alturas, *Norris* 68476; San Bernardino Co.: Bluff Lake, San Gorgonio Wilderness, San Bernardino National Forest, *Harpel* 597 (pers. herb.); San Francisco Co.: Stonestown at 19<sup>th</sup> Avenue, San Francisco, *Toren* 8061 (CAS); Tulare Co.: Headwaters of Freeman Creek, 0.5 mile east of Quaking Aspen, Sequoia National Forest, *Shevock* 10639.

***Drepanocladus capillifolius* (Warnstorf)**

**Warnstorf** [Campylaceae]

**Literature:** Janssens 1983; Wynne 1943; Żarnowiec 2001.

**Illustrations:** Hedenäs 1993a; Janssens 1983; Koponen et al. 1995; Lawton 1971; Wynne 1943; Żarnowiec 2001.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Sierra Co.: Little Truckee River, 13 miles east of Truckee, *MacFadden s.n.* (DUKE) [cited by Żarnowiec 2001] and north shore of Independence Lake, Tahoe National Forest, *Norris* 99453; Tulare Co.: Big Meadows off of Forest Road 14S11, Sequoia National Forest, *Shevock & York* 13668.

***Drepanocladus polycarpus* (Blandow ex Voit)**

**Warnstorf** [Campylaceae]

**Literature:** Żarnowiec 2001.

**Illustrations:** Żarnowiec 2001.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Fresno Co.: near Marvin Pass, Jennie Lakes Wilderness, Sequoia National Forest, *Shevock & York* 13698 (determined by Ochyra); Inyo Co.: near Bishop Creek, Sabrina Basin, Inyo National Forest, *Shevock* 15294 (determined by Ochyra); Kern Co.: Kelso Creek near Rocky Point, Piute Mountains, *Shevock, Laeger, Adams, & Benson* 20268 (determined by Ochyra); Sierra Co.: Sagehen Creek, Tahoe National Forest, *Tavares & Noack* 624 (NY, UC); Tulare Co.: Oriole Lake, Sequoia National Park, *Shevock* 17618 (determined by Ochyra) and Soda Creek, Golden Trout Wilderness, Sequoia National Forest, *Laeger* 447 (determined by Ochyra).

***Drepanocladus sordidus* (C. Müller Hal.)**

**Hedenäs in W. R. Buck** [Campylaceae]

**Literature:** Misapplied as *Drepanocladus sendtneri* Hedenäs 1998; Janssens 1983. Misapplied as *Hypnum sendtneri* Howe 1896.

**Illustrations:** Buck 1998; Hedenäs 2003.

**Geographic subdivisions:** MP, SN, SNE.

**Selected specimens:** Modoc Co.: Big Sage Reservoir north of Alturas, *Norris* 68483; Mono Co.:

Tioga Pass Campground about 2.5 miles north of Tioga Pass, Inyo National Forest, *Norris* 48363.

***Encalypta ciliata* Hedwig** [Encalyptaceae]

**Literature:** Bourell 1981; Crum and Anderson 1981; Harthill et al. 1979; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Showers 1982; Spjut 1971; Toren 1977; Watson 1880.

**Illustrations:** Abramov and Volkova 1998; Allen 2002; Crum and Anderson 1981; Flowers 1973; Horton 1983; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Pursell and Allen 1997b; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** El Dorado Co.: Silver Creek at Rat Castle Campground, Eldorado National Forest, *Norris* 58538; Humboldt Co.: headwaters of South Fork Tish-Tang-a-Tang Creek east of Hoopa, *Norris & Whittemore* 52369 & 52405; Mariposa Co.: near Wawona Tunnel at Discovery Point, Yosemite National Park, *Shevock & Toren* 21485; Mendocino Co.: Eastman Creek about 1 mile east of Dos Rios on Highway 162, *Norris* 55008; Siskiyou Co.: Malone Creek south of Happy Camp, Klamath National Forest, *Norris* 52213; Tehama Co.: headwaters of Beegum Creek above intersection with Forest Road 35, about 1.5 miles west of Rat Trap Gap, Shasta-Trinity National Forest, *Norris* 57007 (determined by Horton); Tulare Co.: road to Mineral King about 0.5 mile east of Silver City, Sequoia National Park, *Shevock* 17656.

***Encalypta intermedia* Juratzka** [Encalyptaceae]

**Illustrations:** No illustration located for this species.

**Geographic subdivisions:** DMOj, DSON, SN, SNE.

**Selected specimens:** Inyo Co.: road from Big Pine to Opal Canyon, north entrance to Saline Valley, Inyo National Forest, *Norris* 79267 & 79269 and Rodgers Peak near Hummingbird Spring, Panamint Mountains, Death Valley National Park, *Shevock, York, & Davis* 21361; Kern Co.: Forest Road 27S02 along ridge, 4.2 miles above Saddle Springs, Piute Mountains, Sequoia National Forest, *Shevock* 15517 (determined by Horton); Trinity Co.: Stuart Gap Trailhead, *Norris* 56873 (determined by Horton).

***Encalypta procera* Bruch** [Encalyptaceae]

**Illustrations:** Crum and Anderson 1981; Horton 1983; Ignatov and Ignatova 2003; Ireland 1982; Pursell and Allen 1997b.

**Geographic subdivisions:** SN.

**Selected specimens:** Fresno Co.: Windy Gulch above Boyden Cave, Monarch Wilderness, Sequoia National Forest, *Shevock & York* 13623 (determined by Horton).

***Encalypta rhyptocarpa* Schwägrichen**

[Encalyptaceae]

**Literature:** Crum and Anderson 1981; Flowers 1973; Koch 1950a; Lesquereux 1868; Spjut 1971.



As *Leersia rhamnoides* Howe 1897. As *Leersia trachymitria* Coville 1893. As *Encalypta vulgaris* var. *rhamnoides* Lawton 1971.

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Lawton 1971; Ochrya 1998a; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, MP, NW, SN, SNE.

**Selected specimens:** Inyo Co.: east side of Army Pass, John Muir Wilderness, Inyo National Forest, *J.T. Howell s.n.* (CAS); Modoc Co.: Big Sage Reservoir northwest of Alturas, *Norris 68498*; Mono Co.: Convict Creek above Convict Lake, Inyo National Forest, *Shevock 13795* (determined by Horton); Plumas Co.: Highway 89 about 3 miles south of Crescent Mills, Plumas National Forest, *Norris 69961* (determined by Horton); Siskiyou Co.: Beaver Creek about 4 miles north of intersection with Klamath River, *Norris 55811* (determined by Horton); Tulare Co.: Tule River near Camp Nelson, Sequoia National Forest, *Norris, Shevock, & Barahona 78683*.

***Encalypta vulgaris* Hedwig** [Encalyptaceae]

**Literature:** Harpel 1980a; Harthill et al. 1979; Kingman 1912; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Showers 1982; Sigal 1975; Steere et al. 1954; Toren 1977; Watson 1880. As *Encalypta vulgaris* var. *mutica* McCleary 1972; Steere 1954.

**Illustrations:** Flowers 1973; Ignatov and Ignatova 2003; Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** CaR, CW, DMoj, MP, NW, SN, SNE, SW.

**Selected specimens:** Lake Co.: Chalk Mountain, north fork Cache Creek, *Toren & Dearing 7311* (CAS) [determined by Horton]; Los Angeles Co.: Highway 138 about 3 miles west of Palmdale, *Norris 68099* and West Fork San Gabriel River, San Gabriel Mountains, Angeles National Forest, *Harpel 2209* (pers. herb.); Mendocino Co.: Eel River about 5 miles south of Dos Rios, *Norris 67610*; Modoc Co.: Loveness Road near Highway 139 about 4 miles north of Canby, *Norris 22468*; Trinity Co.: near Coopers Bar, Shasta-Trinity National Forest, *Norris 71969*; Tulare Co.: General's Highway near Ash Mountain Headquarters, Middle Fork Kaweah River, Sequoia National Park, *Shevock & L. Norris 10168* (determined by Horton).

***Entosthodon attenuatus* (Dickson) Bryhn**

[Funariaceae]

**Literature:** Harthill et al. 1979; Kellman 2003; Koch 1950a; Yurky 1990, 1995. As *E. templetoni* Lesquereux 1868; Lesquereux and James 1884.

**Illustrations:** Allen 2002; Grout 1928–1940.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Del Norte Co.: from junction with Highway 199, 5 miles southeast on County Road 427, *Silver 898* (UC) and Smith River at

Highway 199, Jedediah Smith Redwood State Park, *Norris 68929*; Marin Co.: road to Point Reyes National Seashore, *J.T. Howell 21436* (MO, NY) [determined by Koch; Fife]; Mendocino Co.: location not specified, *Bolander s.n.* (UC); San Luis Obispo Co.: Boy Scout Road at the Palisades, Camp Roberts Military Reservation, *Norris 100926*; San Mateo Co.: near Searsville, *Bolander s.n.* (UC); Santa Cruz Co.: south side of Empire Grade at milepost 13, *Kellman 1457* (CAS) and upper U.C. Santa Cruz Campus at “four corners,” *Kellman 1461* (CAS).

***Entosthodon bolanderi* Lesquereux** [Funariaceae]

**Literature:** Brandege 1891; Harthill et al. 1979; Holzinger 1892; Koch 1950a; Lesquereux 1868; Lesquereux and James 1884; McCleary 1972; Shevock and Toren 2001; Watson 1880. As *Funaria bolanderi* Bartram 1928; Sayre 1940.

**Illustrations:** Grout 1928–1940; Sharp et al. 1994.

**Geographic subdivisions:** DMoj, SN, SNE.

**Selected specimens:** Kern Co.: Highway 178 about 1 mile west of Walker Pass, Scodie Mountains, *Norris 87126*, Mesquite Canyon northwest of Garlock, El Paso Mountains, Mojave Desert, *Norris, Shevock and Barahona 87139*; San Diego Co.: Sea bluffs, La Jolla, *MacFadden 16872* (MO); San Francisco Co.: San Francisco, *Bolander s.n.* (NY); Trinity Co.: near Coopers Bar, Shasta-Trinity National Forest, *Norris 71979*; Tulare Co.: County Road M-99 at Limestone Campground north of Kernville, Sequoia National Forest, *Norris, Shevock, & Barahona 87101*.

***Entosthodon californicus* (Sullivan & Lesquereux) H. Crum & L. E. Anderson** [Funariaceae]

**Literature:** Harthill et al. 1979; Lawton 1971; Toren 1977. As *Funaria californica* Bartram 1928; Howe 1897; Koch 1950a, 1951e; Lesquereux 1868; Lesquereux and James 1884; Watson 1880.

**Illustrations:** Grout 1928–1940; Lawton 1971.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Butte Co.: Big Chico Creek at northeast boundary of Bidwell Park, *Norris 70065*; Fresno Co.: Red Mountain east of Humphreys Station, *Shevock & York 13259*; Lake Co.: Manning Creek, Highway 175 about 4 miles west of Lakeport, *Toren, Bourell, Dearing, & Shevock 7001* (CAS); Mendocino Co.: Little Lake Road about 2 miles east of Mendocino, *Largent s.n.* (UC) and near Robinson Creek southwest of Ukiah, *Steere s.n.* (NY); Shasta Co.: County Road A17 at intersection of road to Black Butte, *Norris 23734 & 23744* and Highway 44 about 13 miles east of Redding, *Norris 71925*; Siskiyou Co.: about 1 mile west of Seiad Valley, *Norris 58284 & 58290*; Tulare Co.: Yucca Point Trail near Ash Mountain, Sequoia National Park, *Shevock & Whitmarsh 16994*.



**\**Entosthodon drummondii* Sullivant in Sullivant & Lesquereux** [Funariaceae]

**Illustrations:** Grout 1928–1940.

**Geographic subdivisions:** CaR, CW, NW.

**Selected specimens:** Butte Co.: south of Chico on Neal Road to Paradise about 0.5 mile east of Highway 99, *Norris* 10609; Humboldt Co.: Alliance Road at 14th Street, City of Arcata, *Norris* 67955; Monterey Co.: Sam Jones Road near Piedras Altas, Hunter-Liggett Military Reservation, *Norris* 87267; Trinity Co.: Rush Creek Road about 4 miles from Lewiston, Shasta-Trinity National Forest, *Norris* 71966.

***Entosthodon kochii* H. Crum & L. E. Anderson** [Funariaceae]

**Literature:** Crum and Anderson 1955.

**Illustrations:** Crum and Anderson 1955.

**Geographic subdivisions:** CW, NW, SN.

**Selected specimens:** Marin Co.: Lucas Valley Road about 2–3 miles east of Nicassio, *Robertson* 916 (CAS); Mariposa Co.: Highway 140 at Bear Creek Bridge along Merced River (BLM land at Briceburg), *Koch* 1733a (MICH); Mendocino Co.: U.C. Hopland Field Station, *Kellman* 2230 (CAS, MO); San Luis Obispo Co.: Nacimiento River at Twin Bridges, Camp Roberts Military Reservation, *Norris* 100950 & 100957.

**\**Entosthodon rubrisetus* (E. B. Bartram) Grout** [Funariaceae]

**Illustrations:** As *Funaria rubriseta* Bartram 1928.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Kern Co.: Erskine Creek Canyon, 3 miles south of Lake Isabella Blvd., Piute Mountains, *Shevock & Tan* 13047 and between Erskine Creek Canyon entrance and Liebel Ranch, *Shevock* 13356; Inyo Co.: Highway 395 just south of Cinder Cone Road, *Shevock* 14789; San Bernardino Co.: Ord Mountain near Daggett, *Haring* 313 (NY).

**\**Entosthodon tucsoni* (E. B. Bartram) Grout** [Funariaceae]

**Illustrations:** As *Funaria tucsoni* Bartram 1928.

**Geographic subdivisions:** SN.

**Selected specimens:** Fresno Co.: trail to Boulder Creek from Boyden Cave, Monarch Wilderness, South Fork Kings River, Sequoia National Forest, *Shevock & York* 14513.

***Ephemerum serratum* (Schreber ex Hedwig) Hampe** [Ephemeraceae]

**Literature:** Brandegee 1891; Bryan and Anderson 1957; Crum and Anderson 1981; Kellman 2003; Koch 1950a; Lesquereux 1868; Shevock and Toren 2001; Toren 1977; Watson 1880. As *Ephemerum minutissimum* Crum 1957. As *Ephemerum serratum* var. *angustifolium* Lesquereux and James 1884.

**Illustrations:** Bryan and Anderson 1957; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Lake Co.: near Hell's Peak, *Toren* 1476 (CAS) [determined by Bryan] and Highway 53 about 1 mile south of Highway 20, *Norris* 47709; Madera Co.: near Eastman Lake, *Shevock* 14933a; San Francisco Co.: Mission Dolores, San Francisco, *Bolander s.n.* (DUKE); Santa Barbara Co.: Santa Inez Mountains about 4 miles south of Solvang, *Norris* 68160; Santa Cruz Co.: University of California, Santa Cruz, *Norris* 55679; Shasta Co.: Highway 299 about 9 miles east of Bella Vista, *Norris* 47595, 47596, & 47598; Tulare Co.: Coffee Campground off of Highway 190, Tule River Canyon, Sequoia National Forest, *Norris* 87046.

***Epipterygium tozeri* (Greville) Lindberg** [Mniaceae]

**Literature:** Bourell 1981; Crum 1967b; Holmberg 1969; Jamieson 1969; Kellman 2003; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Shaw 1984; Shevock and Toren 2001; Smith 1970; Stark and Whittemore 1992; Steere et al. 1954; Sullivant 1856; Toren 1977; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Bryum tozeri* Lesquereux 1868; Watson 1880. As *Webera tozeri* Bradshaw 1926; Brandegee 1891; Lesquereux and James 1884.

**Illustrations:** Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SW.

**Selected specimens:** Butte Co.: Brush Creek, *Dillingham* 805 (UC); Humboldt Co.: near Round Prairie about 3 miles north of Highway 299 on Wiregrass Ridge, *Norris* 52894 (determined by Shaw); Monterey Co.: Campground at Pfeiffer-Big Sur State Park, *Norris* 75886; San Francisco Co.: Golden Gate Park, *Shevock* 18836; Santa Barbara Co.: Windmill Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock* 20886; Shasta Co.: road to Olinda about 2.3 miles east of Anderson, *Norris* 47629; Sonoma Co.: Russian Gulch about 1 mile from bridge, *Koch* 3502 (UC).

***Eucladium verticillatum* (Hedwig in Bridel) Bruch & W. P. Schimper** [Pottiaceae]

**Literature:** Crum and Anderson 1981; Harthill et al. 1979; Howe 1897; Kellman 2003; Kingman 1912; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Long 1978; McCleary 1972; Mishler 1978; Moxley 1928; Steere 1954; Thomson and Ketchledge 1958; Toren 1977; Yurky 1990, 1995; Zander 1977a.

**Illustrations:** Brotherus 1924–1925; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Lawton 1971; Saito 1975; Sharp et al. 1994; Smith 1978; Zander 1993.

**Geographic subdivisions:** CaR, CW, DMoj, DSon, GV, NW, SN, SNE, SW.

**Selected specimens:** Del Norte Co.: mouth of Damnation Creek, Del Norte Redwood State Park, *Norris & Taranto* 10958; Inyo Co.: Hole in the Rock Springs, Death Valley National Park, *Norris*

10201; Lake Co.: Cooper Creek near Hell's Peak, *Toren* 642 (SFSU); Riverside Co.: near Ortega Oaks Campground, Cleveland National Forest, *Norris* 58145; Santa Clara Co.: Penitencia Creek, Alum Rock Park, *Mueller & Schofield* 6922 (UC); Shasta Co.: County Road A16, 14 miles east of Platina, *Norris* 23773; Tulare Co.: Road M-99 at Limestone Campground, Kern River, Sequoia National Forest, *Shevock* 14315; Yolo Co.: Highway 16 about 2 miles northwest of Rumsey, *Norris* 70324.

***Eurhynchium hians* (Hedwig) Sande Lacoste**  
[Brachytheciaceae]

**Literature:** Ireland 1982; Kellman 2003; Shevock and Toren 2001.

**Illustrations:** Ignatov 1998; Ireland 1982.  
**Geographic subdivisions:** CW, NW, SN.

**Selected specimens:** Fresno Co.: Taboose Pass Trail, headwaters of South Fork Kings River, Kings Canyon National Park, *Shevock* 13860; Santa Cruz Co.: Baldwin Creek, Wilder Ranch State Park, *Kellman* 2581 (CAS); Siskiyou Co.: McKinney Creek at junction with West Fork about 6 miles south of Highway 96, Klamath National Forest, *Norris* 84914.

***Eurhynchium pulchellum* (Hedwig) Jennings**  
[Brachytheciaceae]

**Literature:** Harthill et al. 1979; Holmberg 1969; Ireland 1982; Koch 1950a; McCleary 1972; McGrew 1976; Showers 1982; Spjut 1971; Steere 1954; Yurky 1990, 1995. As *Eurhynchium diversifolium* Wynne 1943. As *Eurhynchium strigosum* Bradshaw 1926; Lesquereux 1868; Sayre 1940. As *Eurhynchium strigosum* var. *scabrisetum* Sayre 1940. As *Eurhynchium substrigosum* Flowers 1973; Koch 1950a, 1951e, 1958; Lawton 1971; Spjut 1971. As *Hypnum strigosum* Howe 1897; Watson 1880.

**Illustrations:** Abramov and Volkova 1998; Buck 1998; Flowers 1973; Ireland 1982; Lawton 1971; Smith 1978; Ignatov 1998.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Alpine Co.: Highway 4 at Stanislaus Meadows Trailhead, Stanislaus National Forest, *Norris* 78997; Del Norte Co.: Doctor Rock, Six Rivers National Forest, *Norris* 50284; Fresno Co.: Redwood Creek, Windy Gulch Redwood Grove, Sequoia National Forest, *Norris*, *Shevock*, & *York* 87940; Plumas Co.: Onion Valley Creek near Pacific Crest Trail, Plumas National Forest, *Norris* 83184; Siskiyou Co.: South Fork Lakes west of Callahan, Klamath National Forest, *Norris* 76902; Tulare Co.: Clover Creek, Marble Fork Kaweah River, Sequoia National Park, *Shevock* 15633; Tuolumne Co.: Porcupine Creek Trail near Tuolumne Meadows, Yosemite National Park, *Norris* 100380.

***\*Eurhynchium striatum* (Schreber ex Hedwig) W. P. Schimper** [Brachytheciaceae]

**Illustrations:** Smith 1978.  
**Geographic subdivisions:** CaR, SN.

**Selected specimens:** Plumas Co.: Forest Road 22N94, un-named tributary to South Fork Middle Fork Feather River, Plumas National Forest, *Dillingham* 747 (CAS), Dixie Canyon about 0.5 mile from Highway 89, *Shevock*, *Ertter*, & *Moroso* 15736, just south of Turkeytown, 1 air mile east of Blue Nose Mountain and 10 miles northeast of LaPorte, Plumas National Forest, *Ahart* 10501 (UC), Domingo Spring, 8 miles northwest of Chester, Lassen Natonal Forest, *Dillingham* 965 (CAS).

***Fabronia ciliaris* (Bridel) Bridel** [Fabroniaceae]

**Literature:** As *Fabronia octoblepharis* Kingman 1912.

**Illustrations:** Lawton 1971; Sharp et al. 1994.  
**Geographic subdivisions:** CW, NW, SN, SW.

**Selected specimens:** Lake Co.: Highway 53 about 1 mile south of Highway 20, *Norris* 47677; Los Angeles Co.: La Tuna Canyon, Verdugo Hills, *MacFadden* 8097 (MO) [determined by Grout]; Monterey Co.: Sam Jones Road about 1 km east of Piojo Airstrip, Hunter-Liggett Military Reservation, *Norris* 87260; Nevada Co.: Slacks Ravine along Highway 20 about 7 miles west of Rough and Ready, *Norris* 67484; Shasta Co.: County Road A17 at intersection with Black Butte Road, *Norris* 23747, Interstate 5 about 3 miles north of the Tehama County line, *Norris* 48217 and Shasta College turnoff north of Redding, *Norris* 57766; Sutter Co.: Philip Road near junction with Fiddymont Road northwest of Roseville, *Norris* 103669.

***Fabronia pusilla* Raddi** [Fabroniaceae]

**Literature:** Bradshaw 1926; Harthill et al. 1979; Howe 1896; Kellman 2003; Koch 1950a, 1951e; Lawton 1971; Lesquereux 1868; Long 1978; Mishler 1978; Thomson and Ketchledge 1958; Toren 1977; Watson 1880.

**Illustrations:** Lawton 1971; Sharp et al. 1994.  
**Geographic subdivisions:** CaR, CW, DMOj, NW, SN, SW.

**Selected specimens:** Contra Costa Co.: Mount Diablo State Park about 1.5 miles from entrance, *Koch* 1552 (UC); Inyo Co.: South Fork Hanaupah Canyon, east base of Telescope Peak, Death Valley National Park, *Shevock & York* 21354; Kern Co.: Horse Canyon, tributary of Cache Creek, 4 miles north of Highway 58, southern Piute Mountains, *Shevock & Hare* 14900; San Bernardino Co.: Waterman Canyon, San Bernardino National Forest, *Harpel* 2400 (pers. herb.); Tehama Co.: Antelope Creek Canyon near Microwave Station about 10 miles east of Red Bluff, *Berti* 415 (UC); Trinity Co.: Hall City Caves east of Wildwood, Shasta-Trinity National Forest, *Norris* 71664; Ventura Co.: Howard Creek Trail about 1 mile east of Highway



399, *Norris* 55483; Yuba Co.: Highway 20 near Timbuctoo, *Norris* 67488.

***Fissidens adianthoides* Hedwig** [Fissidentaceae]

**Literature:** Barnes 1887; Frantz and Cordone 1967; Grout 1928–1940; Koch 1950a.

**Illustrations:** Ignatov and Ignatova 2003; Smith 1978.

**Geographic subdivisions:** SN.

**Selected specimens:** Placer Co.: off of Chambers Point submerged at a depth of 244 feet in Lake Tahoe with *Fissidens bryoides* and *F. grandifrons*, Lake Tahoe Basin Management Unit, *Frantz s.n.* (WTU) [determined by Lawton; confirmed by Pursell].

***Fissidens aphelotaxifolius* Pursell**

[Fissidentaceae]

**Literature:** McGrew 1976; Pursell 1976a.

**Illustrations:** Pursell 1976a.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Madera Co.: tributary of Owl Creek 0.75 mile east of Whisky Falls, Sierra National Forest, *Shevock, Norris, Beyer, & Price* 20225 (confirmed by Pursell); Siskiyou Co.: Lower Russian Lake overflow, Klamath National Forest, *McGrew* 322 (HSC) [determined by Pursell].

***Fissidens bryoides* Hedwig var. *bryoides***

[Fissidentaceae]

**Literature:** Barnes 1887; Bourell 1981; Bradshaw 1926; Crum and Anderson 1981; Holmberg 1969; Jamieson 1969; Kellman 2003; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Moxley 1928; Showers 1982; Smith 1970; Spjut 1971; Yurky 1990.

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Iwatsuki and Suzuki 1982; Lawton 1971; Smith 1978.

**Notes:** Pursell recognizes two varieties under *Fissidens bryoides* for California. We cite below collections determined by Pursell as representing these varieties.

**Geographic subdivisions:** SN, SNE, SW.

**Selected specimens:** Fresno Co.: below Fifth Baxter Lake, Kings Canyon National Park, *Shevock & York* 16588 (determined by Pursell); Inyo Co.: Whitney Portal Road, 2.2 miles west of Lone Pine, Lone Pine Creek, Alabama Hills, *Shevock & Norris* 16855 & 16859 (determined by Pursell); Placer Co.: Dutch Flat, *MacFadden* 16863 (MO) [determined by Pursell] and off of Chambers Point submerged at a depth of 244 feet in Lake Tahoe, Lake Tahoe Basin Management Unit, *Frantz s.n.* (WTU) [determined by Pursell]; San Diego Co.: Matagual Creek, Volcan Mountains, *Stark* 602 & 603 (MO) [determined by Pursell]; Tulare Co.: General's Highway, 2.1 miles above Potwisha Campground, Middle Fork Kaweah River, Sequoia National Park, *Shevock* 15181 and North Fork Kern River above Forks of the Kern, Golden Trout Wilderness, Se-

quoia National Forest, *Shevock* 16525 (determined by Pursell).

**\**Fissidens bryoides* Hedwig var. *pusillus* (Wilson) Pursell** [Fissidentaceae]

**Illustrations:** Crum and Anderson 1981; Pursell 1976b; Pursell and Allen 1996a; Sharp et al. 1994.

**Geographic subdivisions:** NW.

**Selected specimens:** Mendocino Co.: North Coast Range Preserve, about 7 miles north of Branscomb, *Bourell* 1391 (CAS, MO) [determined by Pursell].

***Fissidens bryoides* Hedwig var. *viridulus* (Swartz) Brotherus** [Fissidentaceae]

**Literature:** As *Fissidens bryoides* var. *longifolius* Shevock and Toren 2001.

**Illustrations:** Crum and Anderson 1981.

**Geographic subdivisions:** CW, NW, SN.

**Selected specimens:** Lake Co.: Sweetwater Creek, Hidden Valley, *Toren & Dearing* 7075 (CAS) [determined by Pursell]; Placer Co.: Forest Hill, road to Colfax, *MacFadden* 16962 (MO) [determined by Pursell]; San Francisco Co.: Golden Gate Park, *Hermann* 17449 (CAS) [determined by Pursell]; Tuolumne Co.: Vernal Falls, Yosemite National Park, *Ikenberry* 1358a (MO) [determined by Pursell].

***Fissidens crispus* Montagne** [Fissidentaceae]

**Literature:** Kellman 2003; Pursell 1997b; Shevock and Toren 2001. As *Fissidens limbatus* Brandegee 1891; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Kingman 1912; Koch 1949a, 1950a; Koch and Ikenberry 1954; Lesquereux 1868; Lesquereux and James 1884; Long 1978; McCleary 1972; Millspaugh and Nuttall 1923; Mishler 1978; Moxley 1928, 1931; Sayre 1940; Sigal 1975; Steere 1954; Sullivant 1856; Toren 1977; Watson 1880; Whittemore and Sommers 1999; Yurky 1995.

**Illustrations:** Flowers 1973; Sharp et al. 1994.

**Geographic subdivisions:** CaR, CW, GV, NW, SN, SW.

**Selected specimens:** Colusa Co.: about 1.2 miles east of Sites, *Norris* 72681; Fresno Co.: Cripe Road, 0.65 mile from Peterson Mill Road, Sierra National Forest, *Shevock & York* 14949 (confirmed by Pursell); Kern Co.: Bodfish-Havilah Road, 0.5 mile south of Bodfish Gap, base of Piute Mountains, *Shevock & Tan* 13041 (determined by Pursell); Lake Co.: Highway 53 about 1 mile south of Highway 20, *Norris* 47703; San Francisco Co.: Mt. Sutro, *Shevock* 19175 (determined by Pursell); Santa Barbara Co.: Lobos Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock & Rodriguez* 20855 (determined by Pursell); Tehama Co.: end of Buckhorn Road, BLM Black Butte Recreation Area, *Norris & Piippo* 82376; Tulare Co.: about 0.5 mile above Buckeye Campground, trailhead for Middle Fork Kaweah River Trail, Sequoia National Park, *Shevock* 15212 (determined by Pursell).



***Fissidens curvatus* Hornschuch** [Fissidentaceae]

**Literature:** Kellman 2003; Shevock and Toren; Whittemore and Sommers 1999. As *Fissidens milobakeri* Koch 1951c; Pursell 1979; Yurky 1990, 1995.

**Illustrations:** Sharp et al. 1994.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Alameda Co.: UC Berkeley Campus, Strawberry Canyon about 0.5 mile above the Botanic Garden, *Norris* 82603; Butte Co.: Big Chico Creek about 3 miles southwest of upper boundary of Bidwell Park, *Norris* 70092; Nevada Co.: Slack's Ravine along Highway 20 about 7 miles west of Rough and Ready, *Norris* 67468; San Francisco Co.: Coastal Bluff Trail, Golden Gate National Recreation Area, *Shevock* 18886; San Luis Obispo Co.: Santa Rosa Creek about 0.5 mile east of Cambria, *Norris* 68216; Santa Clara Co.: Stanford Campus, *Wiggins* 22715 (MO) [determined by Pursell]; Shasta Co.: Highway 299 about 1 mile east of Shingletown, *Norris* 52846.

**\**Fissidens dubius* Palisot de Beauvois**

[Fissidentaceae]

**Illustrations:** Ignatov and Ignatova 2003. As *Fissidens cristatus* Crum and Anderson 1981.

**Geographic subdivisions:** CW.

**Selected specimens:** San Francisco Co.: Japanese Tea Garden, Golden Gate Park, *Toren* 8951 (CAS, PAC) [determined by Pursell].

***Fissidens fontanus* (Bachelot de la Pylaie)**

**Steudel** [Fissidentaceae]

**Literature:** Crum and Anderson 1981; Kellman 2003; Lawton 1971; Toren 1977; Yurky 1990, 1995. As *Octodiceras fontanum* Koch 1950a. As *Octodiceras julianum* Britton 1902.

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Koponen et al. 1995; Lawton 1971; Pursell 1987; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CW, NW, SN.

**Selected specimens:** Kern River along Highway 178 near Richbar, Sequoia National Forest, *Shevock* 12883 & 16763 (confirmed by Pursell) and outlet of Lake Isabella, *Laeger* 528 (CAS, PAC, UC); Lake Co.: south shore Clear Lake at Corinthian Bay County Park, *Norris* 71780, City of Clear Lake Public Pier, *Toren* 6845 (CAS), Clear Lake State Park, *Toren* 6846 (CAS) east shore of Blue Lakes, *Toren* 523 (SFSU) and Rodman Slough near Upper Lake, *Shevock & Toren* 20306; Marin Co.: Lily Lake, *Toren* 963 (SFSU); Napa Co.: Weeks Ranch about 3 miles from Calistoga towards Petrified Forest, *Koch* 1397 (UC); Santa Cruz Co.: Quail Hollow Pond, Quail Hollow Ranch County Park, *Kellman* 2613 (CAS).

***Fissidens grandifrons* Bridel** [Fissidentaceae]

**Literature:** Barnes 1887; Bourell 1981; Crum and Anderson 1981; Flowers 1973; Frantz and Cordone 1967; Harthill et al. 1979; Holmberg 1969; Howe

1896; Kellman 2003; Kingman 1912; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Long 1978; Mishler 1978; Spjut 1971; Watson 1880; Yurky 1990, 1995.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Iwatsuki and Suzuki 1982; Lawton 1971; Pursell and Allen 1994.

**Geographic subdivisions:** CaR, CW, NW, SN, SW.

**Selected specimens:** Humboldt Co.: Shelter Cove, BLM Kings Range National Recreation Area, *Norris & Piippo* 82478; Los Angeles Co.: San Antonio Creek, Mt. Baldy Camp, Angeles National Forest, *MacFadden* 17156 (MO); Marin Co.: slopes of Mt. Tamalpais, *Koch* 2262 (UC); Monterey Co.: Big Sur River, Big Sur Redwood State Park, *Koch* 3643 (UC); Placer Co.: road to Bowman Lake about 2 miles north of Highway 20, *Norris* 77001; Plumas Co.: Highway 24 along North Fork Feather River, Plumas National Forest, *Koch* 1893 (UC); Siskiyou Co.: about 1.2 miles north of Cook and Green Pass, Rogue River National Forest, *Shevock & Toren* 20115; Tulare Co.: Dark Canyon along road to Jack Ranch near White River Campground, Sequoia National Forest, *Shevock* 14294 (confirmed by Pursell).

***Fissidens minutulus* Sullivant** [Fissidentaceae]

**Literature:** Shevock and Toren 2001. As *Fissidens incurvus* var. *minutulus* Barnes 1887.

**Illustrations:** Sullivant 1864.

**Geographic subdivisions:** CW.

**Selected specimens:** San Francisco Co.: Golden Gate Park, De Laveaga Dell, AIDS Memorial Grove, *Shevock* 20284 (determined by Pursell).

***Fissidens pauperculus* M. A. Howe**

[Fissidentaceae]

**Literature:** Holmberg 1969; Howe 1894; Jamieson 1969; Kellman 2003; Koch 1948, 1949a, 1950a, 1951d; Lawton 1971; Steere et al. 1954; Yurky 1990, 1995.

**Illustrations:** Howe 1894; Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW.

**Selected specimens:** Butte Co.: near Watson Ridge, *Dillingham* 779 (CAS) and tributary to Ponderosa Reservoir, 1.5 miles northwest of Fobestown, *Dillingham* 929 (CAS); Del Norte Co.: Stout Memorial Grove, *Koch* 3811 (UC); Humboldt Co.: James Irvine Trail, Prairie Creek Redwoods State Park, *Jamieson* 173 (UC), Arcata City Forest about 1 mile from Fickle Hill Road, *Norris* 68754 and Jolly Giant Creek about 0.5 mile east of Humboldt State University, *Norris* 85082a; Marin Co.: Mill Valley, *Howe s.n.* (UC) and Dipsea Trail, Mt. Tamalpais State Park, *Yurky* 785 (SFSU); Mendocino Co.: Montgomery Creek Redwoods State Park, *Kellman* 2188 (CAS); Santa Cruz Co.: along Loma Prieta Grade Trail, Forest of Nisene Marks State Park, *Kellman* 2637 (CAS).

***Fissidens sublimbatus* Grout** [Fissidentaceae]

**Literature:** Kellman 2003; Pursell 1997a; Shevock and Toren 2001.

**Illustrations:** Pursell 1997a; Sharp et al. 1994.

**Geographic subdivisions:** CaR, CW, DMoj, DSon, MP, NW, SN, SNE, SW.

**Selected specimens:** Kern Co.: Short Canyon Trail west of L.A. Aqueduct, Owens Peak BLM Wilderness, *Shevock & Newberry 16979* (determined by Pursell); Lake Co.: Hidden Valley north of Middletown, *Toren & Dearing 7373a* (CAS) [determined by Pursell]; Lassen Co.: Johnsondale Dump Road southeast of Susanville, *Norris 52838*; Los Angeles Co.: La Tuna Canyon, Verdugo Hills, *MacFadden 8085* (MO) [determined by Pursell]; San Bernardino Co.: Keystone Canyon, New York Mountains, Mojave National Preserve, *Laeger & Davis 1328* (CAS, PAC) [determined by Pursell]; San Diego Co.: Highway 94, 2 miles west of Tecate Road, *Stark 813* (MO) [determined by Pursell]; San Francisco Co.: Coastal Bluff Trail, Presidio of San Francisco, *Shevock 18945* (determined by Pursell); Santa Barbara Co.: Water Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock & Rodriguez 20832*; Shasta Co.: Highway 299 about 9 miles east of Bella Vista, *Norris 47616*.

**\**Fissidens taxifolius* Hedwig** [Fissidentaceae]

**Illustrations:** Smith 1978.

**Geographic subdivisions:** CW.

**Selected specimens:** Contra Costa Co.: Jewel Lake Trail, Tilden Regional County Park, *Norris & Hill-yard 105188* (confirmed by Pursell).

***Fissidens taylorii* C. Müller Hal.** [Fissidentaceae]

**Literature:** Kellman 2003.

**Illustrations:** Pursell 1997c. As *F. geheebii* Sharp et al. 1994.

**Geographic subdivisions:** CW.

**Selected specimens:** Santa Cruz Co.: Headwaters of Old Dairy Gulch near Wilder Ridge Loop Trail, Wilder Ranch State Park, *Kellman 2252* (CAS) [determined by Pursell].

***Fissidens ventricosus* Lesquereux** [Fissidentaceae]

**Literature:** Bourell 1981; Holmberg 1969; Ireland and Schofield 1967; Kellman 2003; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Toren 1977; Watson 1880. As *F. rufulus* Barnes 1887; Conard 1951; Koch 1950a, 1951e; Koch and Ikenberry 1954; Thomson and Ketchledge 1958.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Alameda Co.: Codornices Park, *S.F. Cook 16* (UC); El Dorado Co.: Highway 50, South Fork American River at Bridal Veil Falls Campground, Eldorado National Forest, *Norris 58407*; Fresno Co.: South Fork Kings River along Highway 180 near Grizzly Falls, Sequoia National Forest, *Shevock & York 14507* (confirmed by Pur-

sell); Humboldt Co.: Ten Taypo Trail, Prairie Creek Redwood State Park, *Norris 56820*; Kern Co.: Highway 178 just west of Richbar Picnic Area, Sequoia National Forest, *Shevock 12882* (confirmed by Pursell); Lake Co.: Gunning Creek, south slopes of Cobb Mountain, *Toren & Dearing 7119* (CAS); Mariposa Co.: Bishop Creek near confluence with South Fork Merced River, Sierra National Forest, *Shevock & Fritzke 21521*; Santa Cruz Co.: Opal Creek, Big Basin Redwoods State Park, *Kellman 1011* (CAS); Sonoma Co.: Pocket Canyon west of Forestville, *Norris 53169*.

***Fontinalis antipyretica* Hedwig** [Fontinalaceae]

**Literature:** Bourell 1981; Harpel 1980a; Harthill et al. 1979; Koch 1950a, 1958; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Long 1978; McGrew 1976; Showers 1982; Spjut 1971; Toren 1977; Watson 1880; Welch 1960. As *Fontinalis antipyretica* var. *patula* Lawton 1971. As *Fontinalis californica* Sullivant 1864. As *Fontinalis patula* Koch 1950a; Welch 1960.

**Illustrations:** Brothertus 1924–1925; Flowers 1973; Ireland 1982; Koponen et al. 1995; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SW.

**Selected specimens:** Colusa Co.: Summit Springs south of Snow Mountain, Mendocino National Forest, *Norris 76101*; Marin Co.: Mt. Tamalpais, *Eastwood s.n.* (UC); Modoc Co.: Hulbert Creek north of Cottonwood Flat Campground, Modoc National Forest, *Norris 77925*; Riverside Co.: San Jacinto Mountains, San Bernardino National Forest, *Parish 1684* (UC); Siskiyou Co.: Echo Lake north of Red Butte about 5 air miles north of Seiad Valley, *Norris 57589*; Tulare Co.: Freeman Creek near Pyles Camp, Lloyd Meadows Basin, Sequoia National Forest, *Shevock 4327*.

***Fontinalis chrysophylla* Cardot** [Fontinalaceae]

**Literature:** As *Fontinalis antipyretica* var. *oregonensis* Lawton 1971.

**Illustrations:** Lawton 1971; Welch 1960.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Del Norte Co.: Hardscrabble Creek at Smith River west of Gasquet, Six Rivers National Forest, *Norris 10877*; Lake Co.: Upper Nye Camp near Snow Mountain Wilderness Trailhead, Mendocino National Forest, *Toren, Bourell, & Shevock 5167* (CAS) [determined by Allen]; Mariposa Co.: Glacier Point Road about 1.2 miles east of Bridalveil Campground, Yosemite National Park, *Norris & Shevock 100322*; Tuolumne Co.: Middle Fork Tuolumne River at Middle Fork Campground, Stanislaus National Forest, *Norris & Shevock 103986*.

***Fontinalis gigantea* Sullivant** [Fontinalaceae]

**Literature:** As *Fontinalis antipyretica* var. *gigantea* Watson 1880.

**Illustrations:** Ireland 1982; Welch 1960.



**Geographic subdivisions:** MP, NW, SN.

**Selected specimens:** Del Norte Co.: Sanger Lake southeast of O'Brien, *Norris* 70805; Fresno Co.: Redwood Creek, Windy Gulch Redwood Grove, Sequoia National Forest, *Norris, Shevock, & Barahona* 87991; Lake Co.: tributary to Stony Creek near Crockett Peak, boundary of Snow Mountain Wilderness, Mendocino National Forest, *Shevock* 15821 (determined by Allen); Modoc Co.: Yellow-jacket Springs, Modoc National Forest, *Norris* 68511; Tulare Co.: outlet of Oriole Lake, Sequoia National Park, *Shevock, Norris, & Barahona* 13170; Tuolumne Co.: Mill Creek below Cascade Creek Campground, Stanislaus National Forest, *Norris* 78801.

***Fontinalis howellii* Renauld & Cardot**  
[Fontinalaceae]

**Literature:** Koch 1950a; Spjut 1971; Toren 1977.  
**Illustrations:** Lawton 1971; Welch 1960.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Alpine Co.: Red Lake Creek, Toiyabe National Forest, *Norris* 88134; Fresno Co.: Cedar Grove just below Zumwalt Meadows along South Fork Kings River, Kings Canyon National Park, *Shevock* 13739; Inyo Co.: Mulkey Meadow near Whitney Portal west of Lone Pine, Inyo National Forest, *Norris* 75598; Lake Co.: Tule Lake, Mt. Sanhedrin, Mendocino National Forest, *Toren* 5116 (CAS); Trinity Co.: Bee Creek along Onion Lake Road about 7 miles south of Onion Lake, *Norris & Rivera* 72548; Tuolumne Co.: Hull Creek Campground about 14 miles east of Long Barn, Stanislaus National Forest, *Norris* 78748.

***Fontinalis hypnoides* C. J. Hartman**  
[Fontinalaceae]

**Literature:** McGrew 1976. As *Fontinalis hypnoides* var. *duriaei* Lawton 1971; Toren 1977. As *Fontinalis duriaei* Koch 1950a. As *Fontinalis niti-da* Frantz and Cordone 1967; Welch 1960.

**Illustrations:** Flowers 1973; Ireland 1982; Koponen et al. 1995; Lawton 1971; Welch 1960.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Alpine Co.: Grass Lake west of Luther Pass, Eldorado National Forest, *Norris* 71321; El Dorado Co.: Ropi Lake, Desolation Wilderness, Eldorado National Forest, *Norris* 71110; Lake Co.: Blue Slides Lake south of Snow Mountain Wilderness, Mendocino National Forest, *Toren* 5261 (CAS) [determined by Allen]; Nevada Co.: about 0.5 mile northeast of Bowman Lake, Tahoe National Forest, *Ahart* 10611 (UC); Plumas Co.: headwaters of Feather River, *Austin s.n.* (UC); Mono Co.: near Barney Lake, Toiyabe National Forest, *Norris* 67170; Shasta Co.: Highway 299 about 1 mile west of Montgomery Creek, *Norris* 68597; Siskiyou Co.: Taylor Lake, Klamath National Forest, *Norris* 83432; Tulare Co.: Big Meadows off of Forest Road 14S11, Sequoia National Forest, *Shevock & York* 13664.

***Fontinalis mollis* C. Müller Hal.** [Fontinalaceae]

**Literature:** As *Fontinalis antipyretica* var. *mollis* Welch 1960.

**Illustrations:** Flowers 1973; Lawton 1971.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Lake Co.: Copsey Creek about 1 mile east of Lower Lake, *Toren* 7330 (CAS) [determined by Allen]. Tulare Co.: Long Meadow Creek at Forest Road 22S82, Sequoia National Forest, *Kellman* 1466 (CAS).

***Fontinalis neomexicana* Sullivant & Lesquereux**  
[Fontinalaceae]

**Literature:** Howe 1896; Kellman 2003; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; McGrew 1976; Showers 1982; Spjut 1971; Watson 1880; Welch 1960. As *Fontinalis mercediana* Lesquereux 1868.

**Illustrations:** Lawton 1971; Sharp et al. 1994; Welch 1960.

**Geographic subdivisions:** CaR, CW, NW, SN, SNE.

**Selected specimens:** Del Norte Co.: Smith River in Jedediah Smith State Park, *Norris* 67356; Fresno Co.: Ten Mile Creek at Ten Mile Campground, Sequoia National Forest, *Shevock & York* 13691; Lake Co.: Bucknell Creek north of Horse Mountain, Mendocino National Forest, *Toren* 7452 (CAS) [determined by Allen]; Mariposa Co.: Bridalveil Creek along Glacier Point Road, Yosemite National Park, *Shevock & Norris* 20190; Mono Co.: Highway 108 west of Bridgeport at Leavitt Station Campground, *Norris* 77041; Placer Co.: Spruce Creek, *Koch* 3211 (UC); Santa Cruz Co.: Semper-virens Creek, Big Basin Redwoods State Park, *Koch* 2071 (MICH); Siskiyou Co.: Shackleford Creek, Marble Mountains, Klamath National Forest, *Spjut* 756 (UC).

**\**Funaria calvescens* Schwägrichen** [Funariaceae]

**Illustrations:** Allen 2002.

**Geographic subdivisions:** CaR, CW, DMoj, SN, SW.

**Selected specimens:** Butte Co.: Honey Run Road, 4 miles east of Covered Bridge about 12 miles east of Chico, *Taylor* 7 (UC); Fresno Co.: Coalinga-Mineral Springs State Park west of Coalinga, *Norris* 68064; Inyo Co.: Emigrant Springs, Death Valley National Park, *Shevock & Harpel* 19048; Kern Co.: South Rim Road, town of Bodfish, *Laeger* 737 (CAS, UC).

***Funaria hygrometrica* Hedwig** [Funariaceae]

**Literature:** Bourell 1981; Bradshaw 1926; Coville 1893; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Jamieson 1969; Kellman 2003; Kingman 1912; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Long 1978; McCleary 1972; Millspaugh and Nuttall 1923; Mishler 1978; Moxley 1928; Sayre 1940; Shevock and Toren 2001; Showers 1982; Sigal 1975; Spjut

1971; Steere 1954; Steere et al. 1954; Strid 1974; Sullivant 1856; Toren 1977; Watson 1880; Whittmore and Sommers 1999; Yurky 1990, 1995. As *Funaria convoluta* Bartram 1928; Howe 1896; Kingman 1912; Lesquereux 1868; Lesquereux and James 1884; Watson 1880. As *Funaria hibernica* Lesquereux 1868. As *Funaria hygrometrica* var. *convoluta* Cooke 1941.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, DMoj, DSon, GV, MP, NW, SN, SNE, SW.

**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris* 87166; Fresno Co.: Ross Landing Road at Indian Head, Sierra National Forest, *Shevock, Ertter, & York* 13484; Humboldt Co.: Eyesee Road at China Gulch, Six Rivers National Forest, *Norris* 22150; Los Angeles Co.: Wrigley Memorial Gardens, Santa Catalina Island, *Harpel* 2402 (pers. herb.); Merced Co.: future campus site of University of California, Merced, *Norris* 103117; Modoc Co.: north of Middle Alkali Lake northeast of Cedarville, *Norris* 47478; Santa Barbara Co.: Lobos Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock & Rodriguez* 20845; Solano Co.: Jepson Prairie Preserve east of Fairfield, *Norris* 101393.

***Funaria microstoma* Bruch ex W. P. Schimper** [Funariaceae]

**Literature:** Fife 1979; Koch 1950a; Lesquereux 1868; Lesquereux and James 1884; Watson 1880.

**Illustrations:** Fife 1979.

**Geographic subdivisions:** CW, DMoj, DSon, GV, SN, SNE.

**Selected specimens:** Kern Co.: Erskine Creek Canyon, 3 miles south of Lake Isabella Blvd., Piute Mountains, *Shevock & Tan* 13048; Fresno Co.: Redwood Creek above Highway 180, Monarch Wilderness, Sequoia National Forest, *Shevock & York* 12692; Monterey Co.: Pinnacles, Hunter-Liggett Military Reservation, *Norris* 87289 and Sulfur Creek Road near junction with Milpitas Road, Hunter-Liggett, *Norris* 87365; San Diego Co.: Borrego Palm Canyon, Anza Borrego State Park, Colorado Desert, *Norris* 50577; Sierra Co.: Little Truckee River, 13 miles from Hobart Mill, *MacFadden* 21385 (MO); Tehama Co.: Antelope Creek Canyon about 10 miles east of Red Bluff along Bell Mill Road, *Berti* 412 (UC).

***Funaria muhlenbergii* Turner** [Funariaceae]

**Literature:** Christy and Wagner 1996; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Howe 1896; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; McCleary 1972; Mishler 1978; Sayre 1940; Shevock and Toren 2001; Steere 1954; Toren 1977; Whittmore and Sommers 1999. As *Funaria calcaria* Kingman 1912; Watson 1880. As *Funaria hibernica* Sullivant 1856. As *Funaria mediterranea*

Bartram 1928; Brandege 1891; Millspaugh and Nuttall 1923; Moxley 1928. As *Entosthodon muhlenbergii* Crosby et al. (2000).

**Illustrations:** Flowers 1973; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CW, GV, NW, SN, SW. **Selected specimens:** El Dorado Co.: Salmon Falls Road about 5 miles south of Pedro Hill Road, *Whittmore* 4344 (MO); Humboldt Co.: Highway 96 at Norton Creek, *Norris* 56662; Inyo Co.: Johnson Canyon, Panamint Mountains, Death Valley National Park, *Shevock, Harpel, & York* 19068; Los Angeles Co.: between Black Jack Campground and Mt. Orizaba, Santa Catalina Island, *Shevock & Thorne* 4037; Sacramento Co.: Mormon Island, *Copeland* 1409 (UC); Santa Cruz Co.: Blue Cliff, Henry Cowell Redwoods State Park, *Kellman* 663 (CAS); Stanislaus Co.: about 2 miles east of Oakdale, *Koch* 1474 (UC); Tulare Co.: PG&E access road crossing the Wishon Fork Tule River, Sequoia National Forest, *Shevock* 10336.

***Grimmia alpestris* (Weber & D. Mohr) Schleicher** [Grimmiaceae]

**Literature:** Cooke 1941; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Muñoz 1997, 1998b; Spjut 1971; Steere et al. 1954.

**Illustrations:** Flowers 1973; Greven 2003; Ignatov and Cao 1994; Ignatov and Ignatova 2003; Lawton 1971; Muñoz 1998b; Smith 1978.

**Geographic subdivisions:** SN.

**Selected specimens:** Fresno Co.: Highway 168 northeast of Shaver Lake, Sierra National Forest, *Norris* 99921; Nevada Co.: Donner Pass Rest Area, Highway 80, Tahoe National Forest, *Whittmore* 3031 (MO) [determined by Muñoz]; Tulare Co.: Kern Plateau near Blackrock Station, Sequoia National Forest, *Shevock* 18411 (determined by Muñoz) and Rock Creek north of Rock Creek Lake, Sequoia National Park, *Shevock* 18567 (determined by Muñoz).

***Grimmia anodon* Bruch & W. P. Schimper** [Grimmiaceae]

**Literature:** Crum and Anderson 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Ireland and Miller 1982; Koch 1950a, 1958; Lawton 1971; Lesquereux and James 1884; Long 1978; Showers 1982; Strid 1974. As *Grimmia apocarpa* var. *pulvinata* Showers 1982.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Greven 2003; Ignatov and Cao 1994; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Muñoz 1999a; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** DMoj, DSon, MP, NW, SN, SNE.

**Selected specimens:** Inyo Co.: Aguerberry Point, Death Valley National Park, *Shevock & Harpel* 19053 (determined by Muñoz) and Taboose Pass Trail, John Muir Wilderness, Inyo National Forest, *Shevock* 13874 (determined by Muñoz); Kern Co.: canyon between Middle Knob and Barren Ridge,



*Hare* 203 (CAS) [determined by Muñoz]; Lake Co.: Hull Mountain Summit, Mendocino National Forest, *Toren* 7176a (CAS) and West Peak, Snow Mountain Wilderness, Mendocino National Forest, *Toren & Dearing* 7472 (CAS); San Bernardino Co.: north side of Peak 3607, Mojave Desert, *Laeger* 873 (CAS) [determined by Muñoz].

***Grimmia anomala* Hampe in W. P. Schimper** [Grimmiaceae]

**Literature:** Misapplied as *Grimmia hartmannii* Harpel 1980a; Harthill et al. 1979; Koch 1950a; Lawton 1971; Long 1978; Mishler 1978; Showers 1982; Spjut 1971.

**Illustrations:** Greven 2003; Ignatov and Ignatova 2003. As *Grimmia hartmannii* var. *anomala* Crum and Anderson 1981; Flowers 1973.

**Geographic subdivisions:** CaR, NW.

**Selected specimens:** Del Norte Co.: Doctor Rock, *Norris* 57676 (determined by Muñoz); El Dorado Co.: Ropi Lake, *Norris* 71109 (determined by Muñoz); Humboldt Co.: Big Hill Road at South Fork Mill Creek, Six Rivers National Forest, *Norris* 58636; Plumas Co.: Quincy-La Porte Road at Onion Valley, Plumas National Forest, *Norris* 83187; Tehama Co.: Doll Basin Research Natural Area, Mendocino National Forest, *Toren & Bourell* 6666 (CAS).

***Grimmia arcuatifolia* Kindberg** [Grimmiaceae]

**Literature:** Muñoz 1999b.

**Illustrations:** Muñoz 1999b.

**Notes:** This species is not recognized by Greven (2003).

**Geographic subdivisions:** NW.

**Selected specimens:** Humboldt Co.: Bear Butte, *Branscomb & Greenman* 22826 (MO) [determined by Muñoz].

***Grimmia caespiticia* (Bridel) Juratzka** [Grimmiaceae]

**Literature:** Muñoz 1998b. As *G. alpestris* var. *manniae* Grout 1928–1940.

**Illustrations:** Greven 2003; Muñoz 1998b.

**Geographic subdivisions:** NW, SN, SNE.

**Selected specimens:** Inyo Co.: Big Pine Creek and Mt. Whitney Trail, Inyo National Forest, *Greven s.n.* (CAS); Mariposa Co.: Aqua Fria Road near Mariposa, *Congdon s.n.* (FH) [determined by Muñoz]; Mono Co.: Highway 182 at Devils Gate near Nevada State line, Toiyabe National Forest, *Greven s.n.* (CAS); Napa Co.: Napa Soda Springs, *Mann s.n.* (NY) [confirmed by Muñoz].

***Grimmia hamulosa* Lesquereux** [Grimmiaceae]

**Literature:** Greven 2003; Koch 1950a, 1958; Koch and Ikenberry 1954; Lesquereux 1868; Lesquereux and James 1884; Muñoz 2000; Showers 1982; Spjut 1971; Watson 1880. As *Grimmia brevirostris* Koch 1950a, 1958; Williams 1920.

**Illustrations:** Greven 2003.

**Geographic subdivisions:** CaR, SN, SNE.

**Selected specimens:** Fresno Co.: below Kearsarge Pass, South Fork Kings River, Kings Canyon National Park, *Shevock* 14329; Inyo Co.: slopes above Treasure Lake west of Big Pine, John Muir Wilderness, Inyo National Forest, *Norris* 47005; Mariposa Co.: Yosemite Valley, ledges near Wawona Tunnel, Yosemite National Park, *Flowers* 5413 (MO) [determined by Muñoz]; Nevada Co.: trail from Donner Rest Area to Summit Lake, Tahoe National Forest, *Whittemore* 3042 & 3045 (MO) [determined by Muñoz]; Tulare Co.: Sawtooth Pass Tail, Mineral King, Sequoia National Park, *Shevock & O'Brien* 16026 (determined by Muñoz).

***Grimmia laevigata* (Bridel) Bridel** [Grimmiaceae]

**Literature:** Albert 1988; Crum and Anderson 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Long 1978; McCleary 1972; Mishler 1978; Sayre 1940; Shevock and Toren 2001; Toren 1977; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Grimmia leucophaea* Kingman 1912; Lesquereux 1868; Lesquereux and James 1884; Watson 1880.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Greven 2003; Ignatov and Cao 1994; Ignatov and Ignatova 2003; Lawton 1971; Muñoz 1999a; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, DMoj, DSon, NW, SN, SW.

**Selected specimens:** Butte Co.: North Table Mountain, Cherokee Road, *Janeway* 5569 (MO) [determined by Muñoz]; Fresno Co.: Cripe Road near Patterson Road, Sierra National Forest, *Shevock & York* 14940 (determined by Muñoz); Kern Co.: Piute Mountain Road, BLM Bodfish Piute Cypress Natural Area, Piute Mountains, *Shevock* 12476; Riverside Co.: Highway 74 at milepost 76.50 near Santa Rosa Mountain Road, San Jacinto Mountains, San Bernardino National Forest, *Shevock* 20519; San Diego Co.: Matagual Creek, Volcan Mountains, *Stark* 594 (MO) [determined by Muñoz]; San Mateo Co.: Edgewood Park, Old Stage Road, *Whittemore* 5276 (MO) [determined by Muñoz]; Santa Barbara Co.: Cherry Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock* 20908 (confirmed by Muñoz).

***Grimmia leibergii* Paris** [Grimmiaceae]

**Literature:** Muñoz 1999b.

**Illustrations:** Greven 2003; Muñoz 1999b.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Alameda Co.: near Sunol Peak, *Brewer* 1492 (CAS) [determined by Toren]; Fresno Co.: Cripe Road near junction with Peterson Mill Road, Sierra National Forest, *Shevock & York* 14941 (confirmed by Bednarek-Ochyra); Glenn Co.: west of town of Elk Creek, Ivory Mill Road (20N01), 1.2 miles above junction with County Road 308, Mendocino National Forest, *Shevock* 15806; Kern Co.: Piute Cypress Botanical Area, Sequoia National Forest, *Shevock* 15502 (determined

by Bednarek-Ochyra); Lake Co.: 2 miles southwest of Lake Pillsbury, Mendocino National Forest, *Toren* 7440 (CAS) [determined by Muñoz] and Hell's Peak near Bachelor Valley, *Toren & Dearing* 6865 (CAS); Siskiyou Co.: north of Cook and Green Pass, Rogue River National Forest, *Toren & Shevock* 8233 (CAS); Tuolumne Co.: South Fork Tuolumne River at Rainbow Pool, Highway 120, Stanislaus National Forest, *Shevock* 18459 (determined by Muñoz).

***Grimmia lesherae* H. C. Greven** [Grimmiaceae]

**Literature:** Greven 2003.

**Illustrations:** Greven 2003.

**Geographic subdivisions:** CaR.

**Selected specimens:** Siskiyou Co.: Hidden Valley, Mt. Shasta, Shasta-Trinity National Forest, *Greven s.n.* (CAS).

***Grimmia lisae* De Notaris** [Grimmiaceae]

**Literature:** Greven 2003; Kellman 2003; Shevock and Toren 2001; Whittemore and Sommers 1999. As *Grimmia californica* Brandegees 1891; Kingman 1912; Lesquereux 1868; Lesquereux and James 1884; Moxley 1928; Sullivan 1856; Watson 1880. As *Grimmia trichophylla* var. *brachycarpa* Toren 1977.

**Illustrations:** Greven 2003.

**Geographic subdivisions:** CaR, CW, NW, SN, SW.

**Selected specimens:** Lake Co.: County Road to Lake Pillsbury at Dashiells Creek, Mendocino National Forest, *Toren* 7262 (CAS) [determined by Whittemore]; San Francisco Co.: Yerba Buena Island, *Toren* 8056 (CAS) and *Shevock* 19109 (determined by Muñoz); Santa Barbara Co.: Windmill Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock* 20898 (determined by Muñoz); Santa Clara Co.: north shore of Lake Grant, Lake Grant County Park, *Whittemore* 6069 (CAS, MO) [determined by Muñoz]; Tulare Co.: along flume above Ash Mountain Headquarters, Sequoia National Park, *Shevock & Morosco* 16780 (determined by Muñoz).

***Grimmia longirostris* W. J. Hooker**

[Grimmiaceae]

**Literature:** Muñoz 1998a.

**Illustrations:** Allen 2002; Greven 2003; Ignatov and Ignatova 2003; Muñoz 1998a, 1999a. As *Grimmia affinis* Ireland 1982; Lawton 1971.

**Geographic subdivisions:** CW, SW.

**Selected specimens:** Contra Costa Co.: north slope of Mt. Diablo, *Hermann* 11357 (determined by Muñoz); Marin Co.: Nicasio-Point Reyes Road, *Weber & Rundel* 48304 (MO); Orange Co.: Silverado Canyon, *Gittins* 679 (MO); San Diego Co.: Pacific Crest Trail about 9 miles from Warner Springs, *G. Allen* 648 (MO) [determined by Muñoz].

***Grimmia mariniana* Sayre** [Grimmiaceae]

**Literature:** Crum 1957; Greven 2003; Muñoz and Pando 2000; Sayre 1955; Toren and Sigal 1974; Yurky 1990, 1995.

**Illustrations:** Greven 2003; Sayre 1955.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Contra Costa Co.: Mt. Diablo below summit, *Hermann* 17360 (CAS); Lake Co.: east slope of Cobb Mountain, *Toren & Dearing* 7125 (CAS) [determined by Muñoz]; Marin Co.: Mt. Tamalpais, *Schofield* 5798 (CAN) [determined by Crum], eastside of East Peak of Mt. Tamalpais, Mt. Tamalpais State Park, *J.T. Howell s.n.* (CAS) and Rock Spring Trail, *Yurky* 483 (SFSU); Napa Co.: Mt. St. Helena, *Koch* 2125 (UC).

***Grimmia mollis* Bruch & W. P. Schimper** [Grimmiaceae]

**Literature:** Crum and Anderson 1981. As *Hydrogrimmia mollis* [see Muñoz and Pando 2000].

**Illustrations:** Crum and Anderson 1981; Greven 2003; Ignatov and Cao 1994; Lawton 1971. As *Hydrogrimmia mollis* Ignatov and Ignatova 2003.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Fresno Co.: from Mono Pass to Golden Lake, John Muir Wilderness, Sierra National Forest, *Norris* 47022; Inyo Co.: above Chocolate Lake west of Big Pine, John Muir Wilderness, Inyo National Forest, *Norris* 46874 and George Lake west of Bishop, John Muir Wilderness, Inyo National Forest, *Norris* 71463.

***Grimmia montana* Bruch & W. P. Schimper** [Grimmiaceae]

**Literature:** Bourell 1981; Brandegees 1891; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Long 1978; Muñoz 1998b; Shevock and Toren 2001; Showers 1982; Sigal 1975; Spjut 1971; Strid 1974; Toren 1977; Watson 1880; Yurky 1990, 1995.

**Illustrations:** Greven 2003; Lawton 1971; Muñoz 1998b, 1999a; Smith 1978.

**Notes:** Many specimens attributed as *G. montana* in earlier references for California are actually *G. ungeri* according to Muñoz.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Fresno Co.: between Boulder Creek and Boyden Cave, Sequoia National Forest, *Shevock & York* 13644 (determined by Muñoz); Glenn Co.: St. John Mountain, Mendocino National Forest, *Shevock & Toren* 20962 (confirmed by Muñoz); Madera Co.: Nelder Redwood Grove, Sierra National Forest, *Shevock & Kellman* 19611 (determined by Muñoz); Santa Cruz Co.: Quail Hollow Ranch, *Kellman* 1142 (CAS); Tulare Co.: Elk Creek near Potwisha Campground, Middle Fork Kaweah River, Sequoia National Park, *Shevock, Norris, & Barahona* 13183.

***Grimmia moxleyi* R. S. Williams in Holzinger** [Grimmiaceae]

**Literature:** Greven 2003; Harthill et al. 1979; Koch 1950a; Long 1978; Moxley 1928.



**Illustrations:** Greven 2003.

**Notes:** According to Muñoz (personal communication), *Grimmia moxleyi* represents the long hair point expression of the widespread taxon *Grimmia orbicularis*. Roxanne Hastings (personal communication) and Greven (2003), however, recognize this taxon at the species level and this is how it will be treated in the Flora of North America. Regardless of circumscription, this ecological expression is common in the Mojave Desert and easily recognized in the field by the exceedingly long white hairpoints.

**Geographic subdivisions:** DMoj, DSon.

**Selected specimens:** Angeles Co.: Big Rock Creek and Devils Punchbowl, Angeles National Forest, *Moxley 1141* (NY, MO) and Tick Canyon, *MacFadden 19695* (CAS); Inyo Co.: Fall Canyon just north of Titus Canyon, Grapevine Mountains, Death Valley National Park, *Shevock, Harpel, & York 19045*.

***Grimmia nevadensis* H. C. Greven**

[Grimmiaceae]

**Literature:** Greven 2002.

**Illustration:** Greven 2002, 2003.

**Notes:** Although published as *Grimmia nevadense*, the wrong Latin ending was used and is changed here in accordance with Article 60, ICBN.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Inyo Co.: Big Pine Creek, Inyo National Forest, *Greven C53* (pers. herb.); Kern Co.: Highway 178, about 2 miles east of Canebrake, Scodie Mountains, *Greven C51* (pers. herb.); Mono Co.: Devil's Gate along Highway 395, Toiyabe National Forest, *Greven C52, C54, C55* (pers. herb.); Tulare Co.: Troy Meadows, Sequoia National Forest, *Greven C50* (BM, CAS, NY, pers. herb.).

***Grimmia orbicularis* Bruch in Wilson**

[Grimmiaceae]

**Literature:** Muñoz 2000.

**Illustrations:** Flowers 1973; Greven 2003; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, DMoj, DSon, MP, SN, SNE, SW.

**Selected specimens:** Butte Co.: Upper Bidwell Park, Chico, *Janeway & Castro 5404* (MO) [determined by Muñoz]; Kern Co.: Rosamond Dry Lake, Mojave Desert, *MacFadden 18557 & 21917* (MO) [determined by Muñoz]; Los Angeles Co.: Devil's Punchbowl, San Gabriel Mountains, Angeles National Forest, *Moxley 1141* (MO) [determined by Muñoz]; San Bernardino Co.: Superior Valley, China Lake Naval Weapons Center, Mojave Desert, *Laeger & Silverman 875* (CAS, MA) [determined by Muñoz]; Tulare Co.: Packsaddle Creek at the base of Packsaddle Cave, Kern Plateau, Sequoia National Forest, *Shevock 10306*.

***Grimmia ovalis* (Hedwig) Lindberg**

[Grimmiaceae]

**Literature:** Crum and Anderson 1981; Harthill et al. 1979; Kellman 2003; McCleary 1972; Sayre 1951. As *Grimmia commutata* Lesquereux and James 1884.

**Illustrations:** Allen 2002; Flowers 1973; Greven 2003; Ignatov and Cao 1994; Ignatov and Ignatova 2003; Lawton 1971; Muñoz 1999a; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CW, DMoj, DSon, MP, SN, SNE.

**Selected specimens:** Fresno Co.: LeConte Canyon, Middle Fork Kings River, Kings Canyon National Park, *Shevock & Haultain 18626* and north of Shaver Lake along Forest Highway 8, Sierra National Forest, *Shevock & Norris 19794* (determined by Muñoz); Inyo Co.: South Fork Hanaupah Canyon, east base of Telescope Peak, Death Valley National Park, *Shevock & York 21358*; Mariposa Co.: Highway 120 near Yosemite Creek Campground, Yosemite National Park, *Shevock 18483* (determined by Muñoz); Santa Cruz Co.: China Grade, Big Basin Redwoods State Park, *Kellman 1293* (CAS, MA) [determined by Muñoz]; Tulare Co.: lower end of Crabtree Meadows west of Mt. Whitney, Sequoia National Park, *Shevock 18549* (determined by Muñoz); Tuolumne Co.: Highway 108, 6.1 miles east of Mi-Wok Ranger Station, Stanislaus National Forest, *Shevock 18587* (determined by Muñoz).

***Grimmia plagiopodia* Hedwig** [Grimmiaceae]

**Literature:** Coville 1893; Crum and Anderson 1981; Flowers 1973; Holzinger 1922; Koch 1950a, 1951e; Showers 1982; Wynne 1943.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Greven 2003; Ignatov and Cao 1994; Ignatov and Ignatova 2003; Lawton 1971; Muñoz 1999a.

**Geographic subdivisions:** CaR, DMoj, SN, SNE.

**Selected specimens:** Amador Co.: Highway 88 at Silver Lake, Eldorado National Forest, *Showers 3300* (CAS, SFSU) [confirmed by Toren]; Inyo Co.: about 2 miles south of Tucki Mountain, Tucki Mountain Wilderness, Death Valley National Park, *Laeger 924* (CAS, MA) [determined by Muñoz]; San Bernardino Co.: Eagle Crags, China Lake Naval Weapons Center, Mojave Desert, *Laeger & Silverman 883* (CAS, MA) [determined by Muñoz]; Tehama Co.: Mt. Conard, Lassen Volcanic National Park, *Showers 3717* (CAS, SFSU) [confirmed by Toren].

**\**Grimmia poecilostoma* Cardot & Seblie**

[Grimmiaceae]

**Illustrations:** Greven 2003; Muñoz 1999a.

**Notes:** According to Muñoz (personal communication) without sporophytes, this taxon is morphologically indistinguishable from *G. tergestina*.

**Geographic subdivisions:** CaR, CW, DMoj, NW, SN, SNE.

**Selected specimens:** Contra Costa Co.: Mitchell Canyon, Mt. Diablo State Park, *Norris 100616*; Inyo Co.: Porter Peak, Panamint Mountains, Death Valley National Park, *Laeger 926* (CAS, MA) [determined by Muñoz]; Madera Co.: Beashore Road near Portuguese Creek southwest of the Balls, Sierra National Forest, *Shevock & Kellman 19681* (determined by Muñoz); San Bernardino Co.: Victorville, *Braun s.n.* (MO) [determined by Muñoz]; Siskiyou Co.: Forest Road 40N56, southeast slope of Mt. Shasta, Shasta-Trinity National Forest, *Norris & Hillyard 104077*.

***Grimmia pulvinata* (Hedwig) J. E. Smith**  
[Grimmiaceae]

**Literature:** Bourell 1981; Bradshaw 1926; Cooke 1941; Crum and Anderson 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Koch 1949a, 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Long 1978; McCleary 1972; Mishler 1978; Shevock and Toren 2001; Spjut 1971; Steere 1954; Steere et al. 1954; Toren 1977; Watson 1880; Yurky 1990, 1995.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Greven 2003; Ignatov and Ignatova 2003; Lawton 1971; Muñoz 1999a; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, DMOj, NW, SN, SW.

**Selected specimens:** Fresno Co.: Kings River Trail, Sierra National Forest, *Shevock & York 12368*; Lake Co.: Clear Lake State Park, *Toren 6840* (CAS); Mendocino Co.: Indian Creek County Park near Philo, *Norris 53235*; Riverside Co.: south of Twentynine Palms at county line, *Norris 57964*; San Francisco Co.: Yerba Buena Island, San Francisco, *Shevock 19113*; Santa Barbara Co.: Miranda Pine Mountain, Los Padres National Forest, *Norris 55314*; Siskiyou Co.: Idlewild Campground about 10 miles east of Sawyers Bar on road to Etna, Klamath National Forest, *Norris 11838*; Tuolumne Co.: Forest Road 17 near Cherry Creek Bridge, Stanislaus National Forest, *Shevock & Ertter 19551* (determined by Muñoz).

***Grimmia ramondii* (Lamarck & A. P. de Candolle) Margadant** [Grimmiaceae]

**Literature:** See Muñoz and Pando 2001. As *Dryptodon patens* Crum and Anderson 1981; Showers 1982; Vitt and Belland 1991. As *Racomitrium patens* Holmberg 1969; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; McGrew 1976; Spjut 1971.

**Illustrations:** Crum and Anderson 1981; Greven 2003; Ignatov and Ignatova 2003; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, MP, NW, SN.

**Selected specimens:** Del Norte Co.: Whiskey Lake, Six Rivers National Forest, *Norris 83362*; Lake Co.: Stony Creek, Snow Mountain Wilderness, Mendocino National Forest, *Toren & Dearing*

*5344* (CAS); Modoc Co.: road to Beeler Reservoir about 16 miles east of Medicine Lake, Modoc National Forest, *Norris 22506*; Nevada Co.: Fall Creek between Bowman Lake and Highway 20, Tahoe National Forest, *Shevock, Ertter, & Morosco 15708* (determined by Muñoz); Placer Co.: North Fork Campground southeast of Emigrant Gap, *Norris 88042 & 88043*; Shasta Co.: Coffee Creek at East Fork of Coffee Creek, *Norris & Hermann 22578*; Siskiyou Co.: Etna-Sawyers Bar Road about 18 miles from Etna, *Norris & Hermann 22745* and Baldy Mountain above Happy Camp, Klamath National Forest, *Branscomb 22739* (MO) [determined by Muñoz]; Tehama Co.: Doll Basin Research Natural Area, Mendocino National Forest, *Toren & Bourell 6792* (CAS, MO).

***Grimmia reflexidens* C. Müller Hal.**  
[Grimmiaceae]

**Literature:** Muñoz 1998b. As *Grimmia sessitana* Greven 2003. As *Grimmia tenerrima* Crum and Anderson 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Long 1978; McGrew 1976; Mishler 1978; Showers 1982.

**Illustrations:** Crum and Anderson 1981; Greven 2003; Ignatov and Ignatova 2003; Muñoz 1998b, 1999a; Ochrya 1998a; Sharp et al. 1994.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Fresno Co.: between Swede and Mystery Lake, Dinkey Lakes Wilderness, Sierra National Forest, *Shevock & York 13916* (determined by Muñoz); Lake Co.: near summit of West Peak, Snow Mountain Wilderness, Mendocino National Forest, *Toren & Dearing 7478* (CAS) [determined by Muñoz]; Madera Co.: north of Quartz Mountain Trailhead, Sierra National Forest, *Shevock & Kellman 19641* (determined by Muñoz); Mariposa Co.: above Half Moon Meadow toward Ten Lakes, Yosemite National Park, *Shevock 19494* (determined by Muñoz); Plumas Co.: about 2 miles east of Blairsden, *J.T. Howell s.n.* (MO) [determined by Muñoz]; Tehama Co.: Tomhead Gulch, Shasta-Trinity National Forest, *Norris 56899*; Tulare Co.: Lloyd Meadows Basin, Sequoia National Forest, *Shevock 4014*.

***Grimmia serrana* Muñoz, Shevock & Toren**  
[Grimmiaceae]

**Literature:** Greven 2003; Muñoz et al. 2002.

**Illustrations:** Greven 2003; Muñoz et al. 2002.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Amador Co.: off of Highway 26 above North Fork Mokelumne River about 2 miles north of West Point, *Toren 8669* (CAS); Butte Co.: Big Bald Rock about 3 miles south of Brush Creek Work Center east of Lake Oroville, Plumas National Forest, *Toren s.n.* (CAS); Calaveras Co.: Winton Road, 3.9 miles northeast of West Point, *Toren 8668* (CAS); Fresno Co.: Peterson Mill Road west of Soaproot Saddle, Sierra National Forest, *Shevock, York, & Clines 14975a* and Mist Falls Trail, Kings Canyon National Park, *Shevock*



& *York 14479* (determined by Muñoz); Kern Co.: Kern River Road (old Highway 178) near Bodfish, Sequoia National Forest, *Shevock 14871*; Lake Co.: Big Rock north of Deer Valley east of Elk Mountain, Mendocino National Forest, *Toren 8002* (CAS, MA) [confirmed by Muñoz] and *Toren & Dearing 8657* (CAS, MA, MO, NY, UC); Madera Co.: along Forest Highway 81 between Rock and Slide Creeks, Sierra National Forest, *Norris & Shevock 100060*; Mariposa Co.: Merced River above El Portal entrance, Yosemite National Park, *Shevock & Norris 20164*; Placer Co.: Dutch Flat, *MacFadden 3840* (MO) [determined by Muñoz] and Highway 20, east end of Bear Flat, Tahoe National Forest, *Shevock & Toren 20707*; Tulare Co.: Wishon Campground, North Fork of Middle Fork Tule River, Sequoia National Forest, *Shevock & Morosco 16808* (determined by Muñoz).

***Grimmia shastae* H. C. Greven** [Grimmiaceae]

**Literature:** Greven 2003.

**Illustrations:** Greven 2003.

**Notes:** Although published as *Grimmia shastai*, the wrong Latin ending was used and is changed here in accordance with Article 60, ICBN.

**Geographic subdivisions:** CaR.

**Selected specimens:** Siskiyou Co.: Mt. Shasta, Shastina Peak, *W. B. Cooke 18282* (CAS, MICH).

**\**Grimmia tergestina* Tommasini ex Bruch & W. P. Schimper.** [Grimmiaceae]

**Illustrations:** Greven 1999c, 2003; Ignatov and Cao 1994; Ignatov and Ignatova 2003; Muñoz 1999a.

**Notes:** According to Muñoz (personal communication) without sporophytes, this taxon is morphologically indistinguishable from *G. poecilostoma*.

**Geographic subdivisions:** DMOj, NW, SN.

**Selected specimens:** Kern Co.: Chimney Creek Road, Kern Plateau, *Shevock 15170* and Sand Canyon north of Tehachapi, *Hare 238* (CAS, MA) [determined by Muñoz]; Lake Co.: Forest Road M-1 at Eel River Bridge near Lake Pillsbury, Mendocino National Forest, *Toren & Dearing 7357* (CAS) [determined by Muñoz] and Hell's Peak near Blue Lakes, *Toren & Dearing 6857* (CAS) [determined by Muñoz] and Hell's Peak north of Bachelor Valley *Toren 778* (SFSU, UC).

***Grimmia torquata* Drummond** [Grimmiaceae]

**Literature:** Crum and Anderson 1981; Holmberg 1969; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; McGrew 1976; Showers 1982; Spjut 1971; Toren 1977; Yurky 1990, 1995.

**Illustrations:** Crum and Anderson 1981; Greven 2003; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SN, SNE.

**Selected specimens:** Del Norte Co.: Poker Creek, Illinois River, Siskiyou National Forest, *Shevock & Toren 20144*; Humboldt Co.: Bear Butte, *Brancomb & Grunman 22828* (MO) [determined by

Muñoz]; Fresno Co.: Forest Highway 5 at Kaiser Creek, Sierra National Forest, *Shevock & Norris 19833*; Lake Co.: Forest Road M-1 at Eel River Bridge, Mendocino National Forest, *Toren 5051* (CAS); Marin Co.: Bootjack Trail, Mt. Tamalpais State Park, *Yurky 332* (SFSU); Mariposa Co.: Yosemite Falls, Yosemite National Park, *MacFadden 17442* (MO) and Vernal Falls, *MacFadden 17441* (MO) [determined by Muñoz]; Placer Co.: Dutch Flat, *MacFadden 16994* (MO) [determined by Muñoz]; Tulare Co.: Crystal Cave Road at junction with Little Deer Creek, Sequoia National Park, *Shevock & Tseng 15774*.

***Grimmia trichophylla* Greville** [Grimmiaceae]

**Literature:** Bourell 1981; Bradshaw 1926; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Kingman 1912; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Long 1978; McCleary 1972; McGrew 1976; Millspaugh and Nuttall 1923; Mishler 1978; Sayre 1940; Shevock and Toren 2001; Showers 1982; Sigal 1975; Smith 1970; Spjut 1971; Steere 1954; Steere et al. 1954; Strid 1974; Sullivant 1856; Toren 1977; Yurky 1990, 1995. As *Grimmia trichophylla* var. *meridionalis* Koch 1950a; Lesquereux and James 1884. As *Grimmia ancistrodes* Lesquereux 1868. As *Grimmia watsoni* Brandegees 1891; Lesquereux and James 1884. Misapplied as *Grimmia trichophylla* var. *muehlenbeckii* Koch 1950a; Lesquereux and James 1884. Misapplied as *Grimmia muehlenbeckii* Lesquereux 1868; Lesquereux and James 1884. Misapplied as *Grimmia decipiens* Holmberg 1969; Koch 1950a; McCleary 1972; Sayre 1940; Spjut 1971.

**Illustrations:** Greven 2003; Lawton 1971; Muñoz 1999a; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SN, SW.

**Selected specimens:** Kern Co.: Pacific Crest Trail 2 miles south of Walker Pass, Sequoia National Forest, *Shevock 13373* (determined by Muñoz); Fresno Co.: LeConte Canyon, Kings Canyon National Park, *Shevock & Haultain 18630* (determined by Muñoz); Lake Co.: Mt. Sanhedrin, Mendocino National Forest, *Shevock, Ertter, Toren, & Dearing 19478* (determined by Muñoz); Tehama Co.: north slope of Tedoc Mountain, Shasta-Trinity National Forest, *Shevock & Ertter 19382* (determined by Muñoz); Tulare Co.: Elk Creek near Potwisha Campground, Middle Fork Kaweah River, Sequoia National Park, *Shevock, Norris, & Barahona 13191a*; Tuolumne Co.: Columns of the Giants Geological Area, Stanislaus National Forest, *Shevock 18591* (determined by Muñoz).

***Grimmia ungeri* Juratzka in Unger & Kotschy** [Grimmiaceae]

**Literature:** Kellman 2003; Muñoz 1998b.

**Illustrations:** Greven 1994, 2003; Muñoz 1998b, 1999a.

**Notes:** There is disagreement between Greven and

Muñoz on the status of plants attributed to be this species for California. Greven (2003) is of the opinion that *Grimmia ungeri* is restricted to southern Europe. Muñoz believes that *Grimmia ungeri* has a broader world distribution based on California specimens that he has studied.

**Geographic subdivisions:** CW, NW, SN.

**Selected specimens:** Glenn Co.: St. John Mountain, Mendocino National Forest, *Shevock & Toren 20970* (determined by Muñoz); Humboldt Co.: Horse Mountain Ski Lift, *Norris 70634*; Madera Co.: northwest base of Fresno Dome, Sierra National Forest, *Shevock & Kellman 19619* (determined by Muñoz); Mariposa Co.: Half Moon Meadow toward Ten Lakes, Yosemite National Park, *Shevock 19495* (determined by Muñoz); Santa Barbara Co.: Figueroa Mountain Road east of Los Olivos, *Norris 103635*; Santa Cruz Co.: Quail Hollow County Park, *Kellman 120* (CAS) [determined by Muñoz]; Tehama Co.: slope of Tedoc Mountain, Shasta-Trinity National Forest, *Shevock & Ertter 19383* (determined by Muñoz); Tulare Co.: Baker Point Botanical Area, Greenhorn Mountains, Sequoia National Forest, *Shevock 18400* (determined by Muñoz).

***Gymnostomum calcareum* Nees & Hornschuch**  
[Pottiaceae]

**Literature:** Kingman 1912; Harthill et al. 1979; Koch 1950a; Koch and Ikenberry 1954; Lesquereux 1868; Long 1978; Mishler 1978; Sullivant 1856; Thomson and Ketchledge 1958; Toren 1977. As *Gymnostomum calcareum* var. *perpusillum* Brandegee 1891; Lesquereux and James 1884; Watson 1880. As *Gymnostomum aeruginosum* Crum and Anderson 1981; Kellman 2003; Lawton 1971; Shevock and Toren 2001; Showers 1982; Spjut 1971; Stark and Whitemore 1992; Toren 1977; Zander 1977a.

**Illustrations:** Crum and Anderson 1981; Smith 1978.

**Notes:** Although generally treated within the circumscription of *Gymnostomum aeruginosum* by some authors, plants attributed to *G. calcareum* are ecologically and morphologically distinctive based on our field experience. All California *Gymnostomum* collections examined are *G. calcareum*.

**Geographic subdivisions:** CaR, CW, DMoj, DSon, NW, SN, SW.

**Selected specimens:** Humboldt Co.: near Trinidad Bay, *Duell s.n.* (UC); Monterey Co.: Pinnacles, Hunter-Liggett Military Reservation, *Norris 87277*; Sonoma Co.: Cedars north of Cazadero, headwaters of Big Austin Creek, *Ertter & Raiche 12862* (UC); Tehama Co.: bluff overlooking Battle Creek near Manton, *Norris 21339*; Trinity Co.: Highway 299, 0.25 miles east of Del Loma, Shasta-Trinity National Forest, *Silver 882* (UC); Tulare Co.: Highway 190, 1.7 miles west of Pierpoint Springs, Middle Fork Tule River, Sequoia National Forest, *Shevock 10142* and Kaweah River below Ash Mountain

Headquarters, Sequoia National Park, *Shevock & Whitmarsh 17023*.

**\**Hamatocaulis vernicosus* (Mitten) Hedenäs**  
[Campyliaceae]

**Illustrations:** Buck 1998; Hedenäs 1989b, 1993a, 2003. As *Drepanocladus vernicosus* Ireland 1982; Janssens 1983; Kanda 1978; Lawton 1971; Smith 1978; Wynne 1944.

**Geographic subdivisions:** CaR, SN, SNE.

**Selected specimens:** El Dorado Co.: Grass Lake along Highway 89 west of Luther Pass, *Norris 71311*; Mariposa Co.: Summit Meadow, Glacier Point Road, Yosemite National Park, *Norris & Shevock 100302*; Mono Co.: Virginia Lakes Basin at Cooney Lake, Toiyabe National Forest, *Janeway 7660* (UC); Plumas Co.: Kanaka Flat, Plumas National Forest, *Janeway 6894* (CSUC, UC).

***Hedwigia detonsa* (Howe) W. R. Buck & Norris**  
[Hedwigiaceae]

**Literature:** Buck and Norris 1996. As *Hedwigia albicans* var. *detonsa* Howe 1897. As *Hedwigia albicans* Howe 1897; Kingman 1912. Misapplied in California as *Hedwigia ciliata* Bourell 1981; Harpel 1980a; Harthill et al. 1979; Koch 1950a; Koch and Ikenberry 1954; Lesquereux 1868; Moxley 1928; Sigal 1975; Toren 1977; Watson 1880; Yurky 1990, 1995.

**Illustrations:** Buck and Norris 1996.

**Notes:** References for *Hedwigia ciliata* in California are common prior to the revision of the North American material (Buck and Norris 1996). *Hedwigia ciliata* is actually north and east of the state and should be deleted as a component of the state bryoflora. *Hedwigia detonsa* is widespread and generally inland in distribution, whereas *Hedwigia stellata* is generally more coastal.

**Geographic subdivisions:** NW, SN, SW.

**Selected specimens:** Alameda Co.: upper boundary of Bidwell Park, *Norris 70096*; San Diego Co.: Highway 76 at west edge of Cleveland National Forest, *Norris 70198*; San Luis Obispo Co.: west of roads to Black Mountain and Navajo Camp, *Norris 55252*; Shasta Co.: Highway 44 at Bear Creek, *Norris 52775*; Tulare Co.: Elk Creek near Potwisha Campground, Middle Fork Kaweah River, Sequoia National Park, *Shevock, Norris, & Barahona 13190*.

***Hedwigia stellata* Hedenäs** [Hedwigiaceae]

**Literature:** Buck and Norris 1996; Kellman 2003. [See notes for *Hedwigia detonsa*.]

**Illustrations:** Buck and Norris 1996.

**Geographic subdivisions:** CaR, CW, NW, SN, SW.

**Selected specimens:** Contra Costa Co.: Castle Rocks, Mt. Diablo State Park, *Shevock & Ertter 20354*; El Dorado Co.: Sopiago Creek southeast of Placerville, Eldorado National Forest, *Norris 67187*; Humboldt Co.: Bald Hills Road at Coyote Peak, *Norris 22333*; Lake Co.: Mt. Konocti just below Buckingham Bluffs, *Shevock, Heise, Harpel, &*



*Toren 20598*; Los Angeles Co.: Santa Anita Canyon, San Gabriel Mountains, Angeles National Forest, *Moxley 994* (MO); Monterey Co.: Arroyo Seco Road near Carmel River, *Toren & Showers 2883* (SFSU); Riverside Co.: Cahuilla Mountain above Tripps Flat, *Shevock 20532*; Santa Cruz Co.: Eagle Rock, *Kellman 1272* (CAS); Shasta Co.: Fall Creek Road, 1 mile southeast of McCloud Bridge, Shasta Lake, *Norris 84860*.

**\**Helodium blandowii* (Weber & D. Mohr) Warnstorf** [Helodiaceae]

**Illustrations:** Abramov and Volkova 1998; Abramova and Abramov 1972; Flowers 1973; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Fresno Co.: Kings Canyon National Park, Middle Fork Kings River, Big Pete Meadow about 2 miles up canyon from LeConte Ranger Station, *Shevock, Haultain, & Hayden 18663* and between Grouse Meadow and LeConte Ranger Station, *Shevock & Haultain 18635*; Mono Co.: between Rock Creek Lake and Hilton Creek Lakes, Inyo National Forest, *Shevock & Toren 21461* and 0.5 mile north of Davis Lake, Inyo National Forest, *Weis 371* (UC) and East Fork Swauger Creek east of Devils Gate and north of Bridgeport, Toiyabe National Forest, *Norris 104239*.

***Hennediella heimii* (Hedwig) Zander** [Pottiaceae]

**Literature:** Kellman 2003; Shevock and Toren 2001. As *Pottia heimii* Flowers 1973; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Watson 1880. As *Desmatodon heimii* Crum and Anderson 1981; Toren 1977.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Ochyra 1998a; Smith 1978; Zander 1993.

**Geographic subdivisions:** CW, MP, NW, SNE.

**Selected specimens:** Contra Costa Co.: Mt. Diablo State Park, *Norris 100551*; Inyo Co.: Rock Creek, *MacFadden 18579* (MO); Lake Co.: north end of Bachelor Valley near Hell's Peak, *Toren 839* (CAS, SFSU) [confirmed by Zander]; Mendocino Co.: location not specified beyond T12N R13W sections 21–23, *Hamilton s.n.* (UC); San Francisco Co.: Letterman Hospital Complex, Presidio of San Francisco, *Shevock 20207*; Santa Cruz Co.: Yellow Bank Creek, *Kellman 2107* (CAS); Shasta Co.: Highway 299 east of Burney at milepost 83, *Norris 21512*.

***Hennediella stanfordensis* (W. C. Steere) Blockeel** [Pottiaceae]

**Literature:** Kellman 2003; Shevock and Toren 2001. As *Tortula stanfordensis* Blockeel 1990; Crum 1957; Koch and Ikenberry 1954; Steere 1951; Toren 1977; Whitehouse 1971; Yurky 1990, 1995.

**Illustrations:** Sharp et al. 1994; Smith 1978; Steere 1951; Whitehouse and Newton 1988; Zander 1993.

**Geographic subdivisions:** CW, GV, NW, SN.

**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris 87167 & 87180*; Humboldt Co.: Humboldt County Courthouse, Eureka, *Norris s.n.*; Mariposa Co.: Cathey's Valley Cemetery along Highway 140 about 11 miles west of Mariposa, *Norris 80863*; Merced Co.: along County Road J-16 about 0.5 mile east of Snelling along Merced River, *Norris 69850*; San Francisco Co.: Potrero Hill, *Toren 7827* (CAS); Santa Cruz Co.: Highway 9 near Highway 35, *Kellman 664* (CAS); Tulare Co.: Clough Cave, South Fork Kaweah River, Sequoia National Park, *Norris 92737*.

***Herzogiella seligeri* (Bridel) Iwatsuki** [Hypnaceae]

**Literature:** Spjut 1971.

**Illustrations:** Ignatov et al. 1996. As *Isopterygium seligeri* Lawton 1971.

**Geographic subdivisions:** NW.

**Selected specimens:** Del Norte Co.: Sanger Lake along Forest Road 4803 southeast of O'Brien, Six Rivers National Forest, *Norris 70810*; Humboldt Co.: Forest Road 10N02 at head of Mill Creek, Six Rivers National Forest, *Norris 70601*; Siskiyou Co.: Haypress Meadows, Marble Mountain Wilderness, Klamath National Forest, *Norris 12401*.

***Herzogiella striatella* (Bridel) Iwatsuki** [Hypnaceae]

**Literature:** Spjut 1971.

**Illustrations:** Ireland 1982; Smith 1978.

**Geographic subdivisions:** NW.

**Selected specimens:** Del Norte Co.: slopes above Sanger Lake southeast of O'Brien, Six Rivers National Forest, *Norris 70856*; Humboldt Co.: upper reaches of Marshall Creek, *Norris 56689*; Siskiyou Co.: Bear Lake, *Norris 24211 & 21217*.

***Heterocladium dimorphum* (Bridel) Bruch & W. P. Schimper** [Pterigynandraceae]

**Literature:** Shevock and Toren 2001.

**Illustrations:** Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CW.

**Selected specimens:** San Francisco Co.: Lafayette Park, *Shevock 19242 & 19245* and Balboa Park, *Shevock 19279*.

***Heterocladium macounii* Best** [Pterigynandraceae]

**Literature:** Bourell 1981. As *Heterocladium heteropteroides* Koch 1950a.

**Illustrations:** Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** NW.

**Selected specimens:** Del Norte Co.: Smith River along Highway 199, Jedediah Smith Redwood State Park, *Norris 68934*; Humboldt Co.: near Prairie Creek Campground, Prairie Creek Redwood State Park, *Norris 12030* and Highway 299 at mile 9.4 east of Arcata, *Norris 55074*; Trinity Co.: Onion

Lake Road about 7 miles south of Onion Lake, *Norris* 72549 & 72562.

***Homalothecium aeneum* (Mitten) E. Lawton**

[Brachytheciaceae]

**Literature:** Harpel 1980a; Harthill et al. 1979; Lawton 1965a, 1971; McCleary 1972; Spjut 1971; Toren 1977. As *Camptothecium aeneum* Koch 1950a; Steere 1954. As *Camptothecium aeneum* var. *dolosum* Sayre 1940. As *Camptothecium dolosum* Millspaugh and Nuttall 1923.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, CW, MP, SN, SW.

**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris* 87169; Colusa Co.: Indian Valley Lake, Mendocino National Forest, *Norris* 67547; Fresno Co.: near Boyden Cave, Monarch Wilderness, Sequoia National Forest, *Shevock & York* 12335; Lake Co.: Clear Lake State Park, *Norris* 47719; Lassen Co.: Aspen Grove Campground, south end of Eagle Lake, *Norris* 52816; Santa Barbara Co.: Bates Canyon, Cole Springs Campground, *Norris* 55323; Trinity Co.: Hall City Caves east of Wildwood, Shasta-Trinity National Forest, *Norris* 71661; Ventura Co.: Lower San Juan Picnic Area, *Norris* 58156.

***Homalothecium arenarium* (Lesquereux) E.**

**Lawton** [Brachytheciaceae]

**Literature:** Harthill et al. 1979; Jamieson 1969; Kellman 2003; Lawton 1965a, 1971; Long 1978; McCleary 1972; Shevock and Toren 2001; Spjut 1971; Whitemore and Sommers 1999; Yurky 1990, 1995. As *Camptothecium alsoides* Kindberg 1892; Koch 1950a; Steere 1954. As *Camptothecium arenarium* Howe 1896; Kingman 1912; Koch 1950a; Millspaugh and Nuttall 1923; Sayre 1940; Steere 1954. As *Hypnum arenarium* Brandegees 1891; Lesquereux 1868; Watson 1880.

**Illustrations:** Lawton 1965a, 1971; Sharp et al. 1994.

**Geographic subdivisions:** CaR, CW, NW, SN, SW.

**Selected specimens:** Lake Co.: base of Mt. Konocti, Clear Lake State Park, *Toren* 7039 (CAS); Mariposa Co.: Moss Canyon near El Portal, Yosemite National Park, *Norris* 80894; Riverside Co.: Mesa de Colorado, Santa Rosa Plateau Preserve west of Murrieta, *Weber, Bratt & Larson* 91958 (UC); San Francisco Co.: Baker Beach, Presidio of San Francisco, *Shevock* 18948; Santa Barbara Co.: Water Canyon east of Black Mountain, Santa Rosa Island, Channel Islands National Park, *Shevock & Rodriguez* 20819; Sonoma Co.: Wolf Creek Road about 4 miles east of Gualala River, *Norris* 86946; Tehama Co.: Highway 36 about 5 miles northeast of Red Bluff, *Norris* 48076; Tulare Co.: General's Highway at Four Guardsman, Giant Forest, Sequoia National Park, *Rundel* 3082 (UC).

***Homalothecium fulgens* (Mitten ex C. Müller**

**Hal.) E. Lawton** [Brachytheciaceae]

**Literature:** Holmberg 1969; Jamieson 1969; Lawton 1965a, 1971; Spjut 1971. As *Camptothecium*

*lutescens* var. *occidentale* Howe 1896; Koch 1950a; Yurky 1990, 1995. As *Camptothecium lutescens* var. *fulgens* Koch and Ikenberry 1954. As *Hypnum lutescens* Lesquereux 1868.

**Illustrations:** Lawton 1965a, 1971; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** El Dorado Co.: Sopiago Creek, southeast of Placerville, *Norris* 67201; Humboldt Co.: shores of Lake Prairie, *Norris* 50402; Lassen Co.: Battle Creek at milepost 75, *Norris* 52685; Mendocino Co.: Mill Creek County Recreation Area about 8 miles east of Ukiah, *Norris* 72627; Plumas Co.: Highway 36 at Gurnsey Creek east of Mineral, *Norris* 48129; Shasta Co.: Highway 299 about 1 mile north of Mineral School at intersection of road to Oak Run, *Norris* 68626; Siskiyou Co.: Shadow Creek at Callahan to Cecilville Road about 6 miles northeast of Cecilville, *Norris* 70542.

***Homalothecium nevadense* (Lesquereux)**

**Renauld & Cardot** [Brachytheciaceae]

**Literature:** Flowers 1973; Harpel 1980a; Harthill et al. 1979; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1965a, 1971; Long 1978; McGrew 1976; Mishler 1978; Sigal 1975; Spjut 1971; Steere et al. 1954; Strid 1974; Toren 1977; Yurky 1990, 1995. As *Hypnum nevadense* Lesquereux 1868; Watson 1880. As *Camptothecium nevadense* Howe 1896.

**Illustrations:** Flowers 1973; Lawton 1965a, 1971.

**Geographic subdivisions:** CaR, CW, DMOj, MP, NW, SN, SNE, SW.

**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris* 87192; Glenn Co.: Cottonwood Glade, *Norris* 47959; Modoc Co.: Boles Creek southeast of Clear Lake, Modoc National Forest, *Norris* 79176; Mono Co.: near Green Lake, Hoover Wilderness, Toiyabe National Forest, *Norris* 57241; Monterey Co.: Nacimiento-Ferguson Road at bridge, Hunter-Liggett Military Reservation, *Norris* 87340; Riverside Co.: McCall Park near Mountain Center east of Hemet, *Norris* 58081; San Benito Co.: Cantua Creek, BLM Clear Creek Recreation Area, *Shevock, Norris, & Hamon* 20297; Shasta Co.: Cassel-Fall River Road about 1 mile east of Shasta-Trinity National Forest boundary, *Norris* 84687; Tulare Co.: County Road M-99 at Limestone Campground, North Fork Kern River, Sequoia National Forest, *Shevock, Norris, & Barahona* 13023; Tuolumne Co.: Highway 120 west of Yosemite, Stanislaus National Forest, *Koch* 1663 (UC).

***Homalothecium nuttallii* (Wilson) A. Jaeger**

[Brachytheciaceae]

**Literature:** Bourell 1981; Harthill et al. 1979; Holmberg 1969; Jamieson 1969; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1965a, 1971; McCleary 1972; Shevock and Toren 2001; Sigal 1975; Smith 1970; Spjut 1971; Steere 1954; Strid 1974; Thomson and Ketchledge 1958; Toren



1977; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Camptothecium nuttallii* Bradshaw 1926. As *Hypnum nuttallii* Lesquereux 1868; Sullivant 1856. As *Hypnum nuttallii* var. *stoloniferum* Lesquereux 1868; Watson 1880.

**Illustrations:** Lawton 1965a, 1971.

**Geographic subdivisions:** CW, GV, NW, SN, SW. **Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris* 87201; El Dorado Co.: Bear Creek Picnic Area southeast of Georgetown, *Norris & Piippo* 82324; Los Angeles Co.: Santa Catalina Island, *G. Wheeler* 6154 (UC); Merced Co.: along County Road J16 adjacent to Merced River about 0.5 mile east of Snelling, *Norris* 69856; Monterey Co.: Arroyo Seco Creek about 4 miles west of Greenfield, *Norris* 48511; San Francisco Co.: Panhandle, Golden Gate Park, San Francisco, *Shevock* 18768; Sonoma Co.: South Ridge Trail above Lake Sonoma at Skaggs Spring Road, *Norris* 86929; Trinity Co.: South Fork Road along South Fork Trinity River, *Norris* 72837.

***Homalothecium pinnatifidum* (Sullivant & Lesquereux) E. Lawton [Brachytheciaceae]**

**Literature:** Bourell 1981; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Lawton 1965a, 1971; Long 1978; McCleary 1972; Sigal 1975; Spjut 1971; Toren 1977; Yurky 1990, 1995. As *Camptothecium amesiae* Howe 1897; Koch 1950a, 1951a; Koch and Ikenberry 1954; Renauld and Cardot 1888. As *Camptothecium pinnatifidum* Bradshaw 1926; Howe 1896; Kingman 1912; Koch 1950a; Koch and Ikenberry 1954; Steere 1954; Thomson and Ketchledge 1958. As *Hypnum pinnatifidum* Lesquereux 1868; Watson 1880. Misapplied as *Homalothecium aureum* Hofman 1998; Whittemore and Sommers 1999.

**Illustrations:** Lawton 1965a, 1971; Sharp et al. 1994.

**Geographic subdivisions:** CaR, CW, NW, SN, SW. **Selected specimens:** Butte Co.: near Cherokee, *Norris* 73603; Kern Co.: Piute Mountain Road, BLM Bodfish Piute Cypress Natural Area, Piute Mountains, *Shevock* 12495; Mendocino Co.: Eel River about 3 miles south of Piercy, *Norris* 72111; San Diego Co.: Highway 76, Cleveland National Forest, *Norris* 70201; Santa Clara Co.: Mine Hill Trail south of Cape Horn Pass, Almaden Quicksilver County Park, *Whittemore* 5316 (UC); Santa Cruz Co.: trail to Buzzards Lagoon, Forest of Nisene Marks State Park, *Kellman* 732 (CAS); Trinity Co.: Highway 299 about 4 miles west of Weaver-ville, *Norris* 73524.

***\*Homomallium mexicanum* Cardot [Hypnaceae]**

**Illustrations:** Sharp et al. 1994.

**Geographic subdivisions:** DMoj.

**Selected specimens:** San Bernardino Co.: Curtis Canyon, Clark Mountain Wilderness, Mojave National Preserve, Mojave Desert, *Shevock, Spence, Glazer, & Laeger* 23681.

***Hookeria lucens* (Hedwig) J. E. Smith [Hookeriaceae]**

**Literature:** Jamieson 1969; Koch 1950a; Lawton 1971. Misapplied as *Hookeria acutifolia* Lesquereux 1868; Watson 1880. As *Pterygophyllum lucens* Howe 1897.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** NW.

**Selected specimens:** Del Norte Co.: Damnation Creek Trail, Del Norte Redwoods State Park, *Norris & Taranto* 10989; Humboldt Co.: Emerald Creek at junction with Redwood Creek, Redwood National Park, *Norris* 45837; Mendocino Co.: County Road 409 about 1 mile east of Highway 1 south of Fort Bragg, *Norris* 11702 and Marchantia Glen, Jackson State Forest, *Bourell* 790 (CAS); Siskiyou Co.: Sugar Creek and Sugar Lake west of Callahan, Klamath National Forest, *Norris* 57327.

***Hygroamblystegium tenax* (Hedwig) Jennings [Amblystegiaceae]**

**Literature:** Harthill et al. 1979; Koch 1950a; Showers 1982; Strid 1974; Toren 1977. As *Amblystegium irriguum* Howe 1897; Kingman 1912. As *Amblystegium tenax* Flowers 1973. As *Hygroamblystegium irriguum* Steere et al. 1954.

**Illustrations:** Flowers 1973; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Del Norte Co.: border of Klamath River northwest of Orick, *R. & I. Duell* 52 (UC); Humboldt Co.: Quinby Creek about 3 miles north of Denny, Shasta-Trinity National Forest, *Norris* 52710; Inyo Co.: Forest Road 8S02 toward North Lake near Bishop Creek at Sabrina Basin, Inyo National Forest, *Shevock* 15287; Lake Co.: Anderson Springs south of Cobb Mountain, *Toren* 7164 (CAS); Sierra Co.: Highway 49 about 7.8 miles west of Sierra City, Tahoe National Forest, *Tavares & Noack* 602a (UC); Siskiyou Co.: Crawford Creek at Klamath River, Klamath National Forest, *Norris* 10493; Tulare Co.: Forks of the Kern River, Golden Trout Wilderness, Sequoia National Forest, *Shevock* 14271.

***Hygrohypnum alpinum* (Lindberg) Loeske [Campyliaceae]**

**Literature:** Jamieson 1976.

**Illustrations:** Jamieson 1976.

**Geographic subdivisions:** NW, SN, SNE.

**Selected specimens:** Fresno Co.: between Golden Lake and Mono Pass, Sierra National Forest, *Norris* 47042 (determined by Jamieson); Mono Co.: Barney Lake, Toiyabe National Forest, *Norris* 67145; Siskiyou Co.: Duck Lake Creek at Forest Road 8, Klamath National Forest, *Norris* 23300 (determined by Jamieson).

***Hygrohypnum bestii* (Renauld & Bryhn) Brotherus [Campyliaceae]**

**Literature:** Flowers 1973; Ireland 1982; Jamieson 1969, 1976; Kellman 2003; Koch 1950a; Lawton

1966, 1971; McGrew 1976; Showers 1982; Yurky 1990, 1995. As *Hypnum bestii* Williams 1901. As *Limnobia bestii* Holzinger 1901.

**Illustrations:** Czernyadjera 2000; Flowers 1973; Ireland 1982; Jamieson 1976; Lawton 1966, 1971.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SNE.

**Selected specimens:** Del Norte Co.: Knopki Creek Road about 9 miles east of Highway 199, *Norris* 7754 (determined by Jamieson); Inyo Co.: Taboose Creek Trail, John Muir Wilderness, Inyo National Forest, *Shevock* 13880; Lake Co.: Big Spring, Boggs Mountain State Forest, *Toren & Dearing* 7108 (CAS); Modoc Co.: Soup Creek Campground east of Likely, Modoc National Forest, *Norris* 9450 (determined by Jamieson); Plumas Co.: Domingo Springs about 8 air miles northwest of Chester, Lassen National Forest, *Shevock & Corbin* 12233; Riverside Co.: Devils Slide Trail, San Jacinto Wilderness, San Bernardino National Forest, *Shevock, Kramer, Hall, & Ward* 24061; Santa Cruz Co.: Castle Rock Falls, Castle Rock State Park, *Kellman* 2259 (CAS); Siskiyou Co.: trail between Abbott Ranch and English Lake, Marble Mountain Wilderness, Klamath National Forest, *Spjut* 1358 (UC) [determined by Jamieson].

**\**Hygrohypnum cochlearifolium* (Venturi in De Notaris) Brotherrus** [Campyliaceae]

**Illustrations:** As *Hygrohypnum smithii* var. *goulardii* Lawton 1971.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Inyo Co.: Dragon Peak and north of Golden Trout Lake near Onion Valley, Inyo National Forest, *Norris* 46746; Madera Co.: Rock Creek about 0.4 mile south of Rock Creek Bridge, Sierra National Forest, *Norris & Shevock* 100023.

***Hygrohypnum duriusculum* (De Notaris) Jamieson** [Campyliaceae]

**Literature:** Jamieson 1976. As *Hygrohypnum dilatatum* Holmberg 1969; Koch 1950a; Spjut 1971.

**Illustrations:** Ireland 1982; Jamieson 1976; Koponen et al. 1995; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Fresno Co.: Grizzly Falls adjacent to the South Fork Kings River, Sequoia National Forest, *Shevock* 12446; Inyo Co.: slopes east of Dragon Peak north of Golden Trout Lake near Onion Valley, John Muir Wilderness, Inyo National Forest, *Norris* 46714; Siskiyou Co.: Horsetail Falls along road from Seiad Valley to Cook and Green Pass north of Seiad Valley, *Norris* 57622 and Paynes Creek, Klamath National Forest, *Norris* 46288.

***Hygrohypnum luridum* (Hedwig) Jennings** [Campyliaceae]

**Literature:** Flowers 1973; Harpel 1980a; Jamieson 1976; Koch 1950a, 1958; Lawton 1971; Showers 1982; Spjut 1971. As *Hypnum pseudo-arcticum* Howe 1897. As *Limnobia palustre* Howe 1896.

**Illustrations:** Abramov and Volkova 1998; Flowers 1973; Hedenäs 2003; Ireland 1982; Jamieson 1976; Kanda 1978; Koponen et al. 1995; Lawton 1971; Smith 1978.

**Geographic subdivisions:** NW, SN, SNE.

**Selected specimens:** Inyo Co.: above Golden Trout Lake northwest of Onion Valley, John Muir Wilderness, Inyo National Forest, *Norris* 46709; Mono Co.: Mildred Lake above Convict Lake, Inyo National Forest, *Norris* 71413; Tehama Co.: Anthony Peak, Mendocino National Forest, *Norris* 55044; Tulare Co.: above Primrose Lake, Sequoia National Park, *J.T. Howell s.n.* (CAS); Tuolumne Co.: Highway 108 about 1.5 miles below Sonora Pass, Stanislaus National Forest, *Norris* 78837.

***Hygrohypnum molle* (Hedwig) Loeske** [Campyliaceae]

**Literature:** Flowers 1973; Frantz and Cordone 1967; Harpel 1980a; Harthill et al. 1979; Jamieson 1976; Koch 1950a, 1958; McGrew 1976; Showers 1982; Spjut 1971; Strid 1974; Toren 1977.

**Illustrations:** Flowers 1973; Jamieson 1976; Lawton 1971.

**Geographic subdivisions:** CaR, SN, SW.

**Selected specimens:** El Dorado Co.: Round Lake, Eldorado National Forest, *Norris* 71162; Fresno Co.: Taboose Pass Trail, headwaters of the South Fork Kings River, Kings Canyon National Park, *Shevock* 13867; Placer Co.: canyon feeding Ward Creek near junction with Courchevel Road, *Whitemore* 3075 (MO); Plumas Co.: stream near Johnsville, *Ikenberry* 371 (MO); Riverside Co.: North Fork San Jacinto River, San Jacinto State Park, *Harpel* 1122 (pers. herb.) [confirmed by Schofield]; Tulare Co.: Kern Plateau, Sirretta Creek above Big Meadow, Sequoia National Forest, *Shevock* 17511 and trail between Silliman Pass and Lodgepole, Sequoia National Park, *Norris* 46516; Tuolumne Co.: Deadman Creek off of Highway 108 west of Sonora Pass, Stanislaus National Forest, *Shevock* 18599 (determined by Ochyra).

***Hygrohypnum ochraceum* (Turner ex Wilson) Loeske** [Campyliaceae]

**Literature:** Flowers 1973; Ireland 1982; Jamieson 1976; Koch 1950a, 1958; Koch and Ikenberry 1954; Lawton 1971; McGrew 1976; Spjut 1971. As *Hypnum ochraceum* Coville 1893.

**Illustrations:** Flowers 1973; Ireland 1982; Jamieson 1976; Kanda 1978; Koponen et al. 1995; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Calaveras Co.: south of Lake Alpine, 5.4 miles from county line on Highway 4, Stanislaus National Forest, *Mueller* 6699 (UC); Inyo Co.: above Chocolate Lake west of Big Pine, John Muir Wilderness, Inyo National Forest, *Norris* 46926; Nevada Co.: area of Donner Lake along stream, Tahoe National Forest, *Whitemore* 3053 (MO); Siskiyou Co.: Sugar Lake west of Callahan, Klamath National Forest, *Norris* 57387; Trinity



Co.: tributary of Coffee Creek near South Fork, *Norris 9361* (determined by Jamieson); Tulare Co.: trail east of Mitchell Peak toward Mitchell Meadow, Kings Canyon National Park, *Shevock 14562*.

***Hygrohypnum smithii* (Swartz in Liljeblad)**

**Brotherus** [Campylaceae]

**Literature:** Flowers 1973; Jamieson 1976; Koch 1950a, 1958; Koch and Ikenberry 1954; Lawton 1971; McGrew 1976; Showers 1982. As *Hypnum arcticum* Lesquereux 1868; Watson 1880.

**Illustrations:** Abramov and Volkova 1998; Flowers 1973; Jamieson 1976; Lawton 1971.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Fresno Co.: Forest Road 9S10 at tributary of Cow Creek, Sierra National Forest, *Shevock 14207*; Inyo Co.: Bighorn Sheep Zoological Area, Baxter Pass Trail, John Muir Wilderness, Inyo National Forest, *Shevock & York 16545*; Plumas Co.: stream near Quincy, *Ikenberry 1322* (MO) [determined by Koch]; Shasta Co.: Drakesbad, Warner Valley, Lassen Volcanic National Park, *Showers 2427* (UC); Siskiyou Co.: Sugar Lake west of Callahan, Klamath National Forest, *Norris 57380* and Paynes Lake, *Norris & Smith 46359*.

***Hygrohypnum styriacum* (Limpricht) Brotherus**

[Campylaceae]

**Literature:** Jamieson 1976.

**Illustrations:** Jamieson 1976.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Fresno Co.: Mist Falls Trail near junction of Bubbs Creek, Kings Canyon National Park, *Shevock & York 14469*; Inyo Co.: east of Dragon Peak and north of Golden Trout Lake near Onion Valley, John Muir Wilderness, Inyo National Forest, *Norris 46717*; Mono Co.: Highway 120 below Ellery Lake east of Tioga Pass, Inyo National Forest, *Shevock 13784* (determined by Jamieson) and Koenig Lake near Leavitt Lake east of Sonora Pass, Toiyabe National Forest, *Norris 57177*; Trinity Co.: Bullards Basin, Shasta-Trinity National Forest, *Norris 9287*.

***Hylocomium splendens* (Hedwig) Bruch & W.**

**P. Schimper** [Hylocomiaceae]

**Literature:** Holmberg 1969; Koch 1950a; Lawton 1971.

**Illustrations:** Buck 1998; Crum and Anderson 1981; Ignatov et al. 1996; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** NW.

**Selected specimens:** Del Norte Co.: about 2 miles west of Gasquet, Six Rivers National Forest, *Norris 7820* (determined by Rohrer) and South Fork Smith River near Rock Creek Ranch about 8 miles from Hiouchi, Six Rivers National Forest, *Dillingham 868* (CAS, UC); Siskiyou Co.: Middle Fork Applegate Trail near French Gulch, Rogue River National Forest, *Rolle & Rolle s.n.* (CAS, UC).

***Hymenostylium recurvirostre* (Hedwig) Dixon**

[Pottiaceae]

**Literature:** Zander 1977a. As *Gymnostomum recurvirostre* Crum and Anderson 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Long 1978; Mishler 1978.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978; Zander 1993.

**Geographic subdivisions:** CaR, DMoj, SN, SNE, SW.

**Selected specimens:** Inyo Co.: Main Fork Trail Canyon, base of Wilrose Peak, Death Valley National Park, *Shevock, York, Glazer, & Laeger 21853*; Kern Co.: Pine Tree Canyon west of Barren Ridge, *Shevock, Ertter, & Hare 17836*; Los Angeles Co.: Pacoima Dam, San Fernando Valley, *MacFadden 8171* (MO) [determined by Bartram]; Mono Co.: Convict Lake Trail between Convict Lake and Lake Mildred, Inyo National Forest, *Whitemore 1541a* (CAS) and *Norris 71372*; Shasta Co.: Upper Manzanita Creek at base of Crescent Cliffs, Lassen Volcanic National Park, *Showers 3924a* (UC); Tulare Co.: Limestone Cliffs, Kern River Canyon along County Road M-99, Sequoia National Forest, *Shevock 17062*.

***Hypnum circinale* W. J. Hooker** [Hypnaceae]

**Literature:** Bourell 1981; Holmberg 1969; Howe 1897; Jamieson 1969; Kellman 2003; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Smith 1970; Spjut 1971; Thomson and Ketchledge 1958; Toren 1977; Watson 1880; Yurky 1990, 1995.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW.

**Selected specimens:** Butte Co.: Brush Creek, Plumas National Forest, *Dillingham 856* (CAS); Del Norte Co.: Highway 199 along Smith River about 9 miles east of junction with Highway 101, *Norris 85019*; Lake Co.: Summit Lake east of Mt. Sanhedrin, Mendocino National Forest, *Toren & Dearing 7202* (CAS); Marin Co.: Muir Woods National Monument, *Hermann 17496* (CAS); Mendocino Co.: Fox Creek north of Branscomb, The Nature Conservancy Branscomb Reserve, *Norris 47117*; Plumas Co.: below Cresta Power Station, *Norris 52645*; Santa Cruz Co.: Sempervirens Creek near Camp 7, Big Basin Redwood State Park, *Koch 2030a* (UC) and Opal Creek, *Kellman 1015* (CAS); Siskiyou Co.: between Wilderness Falls and Doe Flat, Klamath National Forest, *Norris 67806*.

***Hypnum dieckii* Renauld & Cardot** [Hypnaceae]

**Literature:** Holmberg 1969.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Del Norte Co.: near Prescott Cabin, *Norris 9023*; Humboldt Co.: Mill Creek, Forest Road 10N02, Six Rivers National Forest,

*Norris 70604*; Siskiyou Co.: Sugar Creek at Sugar Lake west of Callahan, Klamath National Forest, *Norris 57307*; Trinity Co.: Ditch Gulch below Highway 3 about 1 mile north of Highway 36, *Norris 68685*; Tulare Co.: East Fork Kaweah River below Atwell Mills Campground, Sequoia National Park, *Norris 46460*.

**\**Hypnum lindbergii* Mitten** [Hypnaceae]

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981.

**Geographic subdivisions:** SN.

**Selected specimens:** Nevada Co.: Boreal Ski Area, Tahoe National Forest, *Norris 102658*.

***Hypnum revolutum* (Mitten) Lindberg**  
[Hypnaceae]

**Literature:** Koch 1950a, 1958; Lawton 1971; Showers 1982.

**Illustrations:** Flowers 1973; Ignatov et al. 1996; Lawton 1971; Ochyra 1998a; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** DMOj, NW, SN, SNE, SW.

**Selected specimens:** Del Norte Co.: Bear Basin Creek north of Bear Basin Butte, *Norris 68894*; El Dorado Co.: Silver Creek at Rat Castle Campground, *Norris 58553*; Inyo Co.: slopes above Chocolate Lake west of Big Pine, John Muir Wilderness, Inyo National Forest, *Norris 46910* and Sabrina Basin, Inyo National Forest, *Shevock 15332*; San Bernardino Co.: Curtis Canyon, Clark Mountain Wilderness, Mojave National Preserve, Mojave Desert, *Shevock, Spence, Glazer, & Laeger 23675*; Tulare Co.: Middle Fork Kaweah River at Little Deer Creek off of Crystal Cave Road, Sequoia National Park, *Shevock & Tseng 15776*.

***Hypnum subimponens* Lesquereux** [Hypnaceae]

**Literature:** Bourell 1981; Holmberg 1969; Jamieson 1969; Kellman 2003; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Spjut 1971; Toren 1977; Watson 1880; Yurky 1990, 1995.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CW, NW, SN.

**Selected specimens:** Marin Co.: Samuel P. Taylor Park, *Wagner s.n.* (UC); Mendocino Co.: Eel River about 3 miles south of Piercy, *Norris 72143*; Placer Co.: road to Bowman Lake about 2 miles north of Highway 20, *Norris 77021*; Santa Cruz Co.: South Fork Fall Creek, Henry Cowell Redwoods State Park, *Kellman 358* (CAS); Siskiyou Co.: west branch of Sutcliffe Creek about 13 miles northwest of Happy Camp, Klamath National Forest, *Norris 83299*; Tulare Co.: Crystal Cave Road at junction with Little Deer Creek, Sequoia National Park, *Shevock 15642*.

**\**Hypnum vaucheri* Lesquereux** [Hypnaceae]

**Illustrations:** Flowers 1973; Ignatov et al. 1996; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** SNE.

**Selected specimens:** Inyo Co.: Methuselah Trail in Schulman Grove, Ancient Bristlecone Pine Forest Botanical Area, White Mountains, Inyo National Forest, *Norris 99518*.

***Isopterygiopsis pulchella* (Hedwig) Iwatsuki**  
[Hypnaceae]

**Literature:** As *Isopterygium pulchellum* Harpel 1980a; Ireland 1982; Koch 1950a; Lawton 1971; Showers 1982; Spjut 1971.

**Illustrations:** Ignatov et al. 1996; Ireland 1982; Lawton 1971; Smith 1968.

**Geographic subdivisions:** NW, SN, SW.

**Selected specimens:** Fresno Co.: Lockwood Redwood Grove, Sequoia National Forest, *Norris, Shevock, & York 87916*; Riverside Co.: Wellmans Cienega, San Jacinto Mountains, San Jacinto State Park, *Harpel 951* (pers. herb.); Siskiyou Co.: Terrace and Upper Cliff Lakes, *Norris 53036* and Sawtooth Ridge at crest of Caribou Rim along trail from Big Flat to Caribou Basin, *Norris 9213*; Tulare Co.: Lower Soldier Lake, Sequoia National Park, *J.T. Howell s.n.* (CAS) and north slope Slate Mountain, Sequoia National Forest, *Shevock 15670*; Tuolumne Co.: Pilot Ridge, Stanislaus National Forest, *Shevock 13268*.

**\**Isopterygium tenerum* (Swartz) Mitten**  
[Hypnaceae]

**Illustrations:** Buck 1998; Ireland 1982; Iwatsuki and Crosby 1979; Sharp et al. 1994.

**Geographic subdivisions:** SN.

**Selected specimens:** El Dorado Co.: Ropi Lake, Desolation Wilderness, Eldorado National Forest, *Norris 71114*.

**\**Isothecium cardotii* Kindberg**  
[Brachytheciaceae]

**Illustrations:** No illustration located for this species.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** El Dorado Co.: Bear Creek Picnic Area near Georgetown, *Norris & Piippo 82337*; Humboldt Co.: about 1 mile north of Indianola, *Norris 10260* and Forest Road 10N02 at head of Mill Creek, Six Rivers National Forest, *Norris 70571*; Shasta Co.: Forest Road 39N07 along Soda Creek about 6 miles northeast of Interstate 5 south of Dunsuir, *Norris & Hillyard 103834*; Siskiyou Co.: South Fork Salmon River near junction with West Fork, *Norris 10088*; Tuolumne Co.: Pilot Ridge, Stanislaus National Forest, *Shevock 13267 & 13277*.

***Isothecium cristatum* (Hampe) H. Robinson**  
[Brachytheciaceae]

**Literature:** Bourell 1981; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Lawton 1971; McCleary 1972; Shevock and Toren 2001; Smith 1970; Toren 1977; Yurky 1990, 1995. As *Bestia cristata* Koch 1950a, 1951e; Koch and Ikenberry



1954. As *Bestia breweriana* Steere 1954; Thomson and Ketchledge 1958. As *Hypnum brewerianum* Brandegee 1891; Koch 1950a; Lesquereux 1868. As *Hypnum aggregatum* Lesquereux 1868; Watson 1880. As *Isothecium brewerianum* Bradshaw 1926; Howe 1897; Kingman 1912. As *Isothecium howei* Howe 1896.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** El Dorado Co.: Highway 50 along South Fork American River at Bridal Veil Falls Campground, *Norris* 58420; Humboldt Co.: Emerald Creek at junction with Redwood Creek, Redwood National Park, *Norris* 45827; Marin Co.: trail near Mud Lake, Point Reyes National Seashore, *Norris* 71842; San Francisco Co.: Glen Canyon, San Miguel Hills, *Shevock* 18875 & 18891; Santa Cruz Co.: Highway 9 about 1.5 miles north of Boulder Creek, *Norris* 55596; Shasta Co.: Brandy Creek Picnic Area, Whiskeytown National Recreation Area, *Norris* 73619; Sonoma Co.: Green Valley Creek about 0.25 mile south of Highway 116, west of Forestville, *Norris* 101115.

***Isothecium myosuroides* Bridel**

[Brachytheciaceae]

**Literature:** Allen 1983; Holmberg 1969; Jamieson 1969; Kellman 2003; McGrew 1976; Shevock and Toren 2001; Smith 1970; Whittemore and Sommers 1999; Yurky 1995. As *Hypnum myosuroides* Brandegee 1891; Lesquereux 1868; Sullivant 1856; Watson 1880.

**Illustrations:** Smith 1978.

**Geographic subdivisions:** CW, NW, SN.

**Selected specimens:** San Benito Co.: trail to the caves, Pinnacles National Monument, *Koch* 1325a (UC); Santa Cruz Co.: near Stevens Redwood Grove, *Schofield* 8328 (UC); Trinity Co.: East Fork Road at Rich Gulch, north of Helena, Shasta-Trinity National Forest, *Norris* 18950; Tulare Co.: tributary of Squirrel Creek, Sequoia National Park, *Norris*, *Shevock*, & *Barahona* 87550.

***Isothecium obtusatum* Kindberg**

[Brachytheciaceae]

**Literature:** Kellman 2003.

**Illustrations:** Allen and Whittemore 1996.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Del Norte Co.: exit of Sanger Lake along Forest Road 4803 southeast of O'Brien, Six Rivers National Forest, *Norris* 70834; Marin Co.: trail to Mud Lake, Point Reyes National Seashore, *Norris* 71813; Placer Co.: Highway 49 about 1 mile south of Forest Hill Road, *Whittemore* 3541 (CAS); San Mateo Co.: between headquarters and Tiptoe Falls, Portola State Park, *Whittemore* 4112 (CAS); Santa Cruz Co.: San Lorenzo River near the Saratoga Toll Road about 7 miles north of Boulder Creek off Highway 9, *Kellman* 2535 (CAS).

***Isothecium spiculiferum* (Mitten) Renauld & Cardot** [Brachytheciaceae]

**Literature:** Bourell 1981; Harthill et al. 1979; Shevock and Toren 2001; Showers 1982; Toren 1977.

**Illustrations:** No illustration located.

**Geographic subdivisions:** CW, NW.

**Specimens examined:** Del Norte Co.: Coastal Trail between False Klamath Cove and Requa, Redwood National and State Parks, *Norris* 70361; Humboldt Co.: Chemise Mountain Trail from Nadelos Recreation Site, BLM Kings Range Conservation Area, *Norris* 67713; San Francisco Co.: Mt. Sutro, *Shevock* 19181 and Golden Gate Park, *Shevock* 19204.

***Isothecium stoloniferum* Bridel**

[Brachytheciaceae]

**Literature:** Holmberg 1969; Lesquereux 1868; Spjut 1971; Yurky 1990. As *Pseudoisothecium stoloniferum* Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Thomson and Ketchledge 1958.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** El Dorado Co.: South Fork American River at Carpenter Creek, *Norris* 58439 and Whaler Creek south of Quintette, *Norris* & *Piippo* 82360; Humboldt Co.: about 3 miles north of Avenue of the Giants, *Norris* 72148; Mendocino Co.: Mill Creek, *Norris* 53256; Shasta Co.: Shotgun Creek near North Fork Shotgun Creek southeast of Sims, *Norris* & *Hillyard* 103869; Sonoma Co.: Sonoma, *Bioletti s.n.* (UC).

***Jaffuelobryum raui* (Austin) Thériot**

[Grimmiaceae]

**Literature:** Harpel 2000. [See Churchill 1987 for description and distribution.]

**Illustrations:** Churchill 1987. As *Grimmia rauii* Crum and Anderson 1981; Flowers 1973.

**Geographic subdivisions:** DMoj, SN, SNE, SW.

**Selected specimens:** Riverside Co.: Bull Canyon Road, San Jacinto Mountains, San Bernardino National Forest, *Harpel* 1177 (UBC, UC) [confirmed by Schofield] and Martinez Canyon near Aqua Alta Canyon, Santa Rosa Mountains, Colorado Desert, *Wheeler* 8813 (CAS, UC); Tulare Co.: Forks of the Kern River, Golden Trout Wilderness, Sequoia National Forest, *Shevock* 16526.

**\**Jaffuelobryum wrightii* Sullivant in Sullivant & Lesquereux** [Grimmiaceae]

**Illustrations:** Churchill 1987. As *Grimmia wrightii* Crum and Anderson 1981; Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** DMoj, SNE.

**Selected specimens:** Inyo Co.: Grandview Campground near Grandview Mine, White Mountains, Inyo National Forest, *Wheeler* 8511 (CAS, UC); San Bernardino Co.: Coyote Canyon, Granite Mountains, north of Highway 40, Mojave National Preserve, *Norris* 87856.

***Kiaeria blyttii* (Bruch & W. P. Schimper)****Brotherus** [Dicranaceae]**Literature:** Crum and Anderson 1981; Showers 1982.**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982. As *Arctoa blyttii* Lawton 1971.**Geographic subdivisions:** CaR, NW.**Selected specimens:** Shasta Co.: boulder slope west of Lost Creek Camp, Lassen Volcanic National Park, *Showers* 3738 (UC); Siskiyou Co.: Gulch Lake southwest of Callahan, Klamath National Forest, *Norris* 57531 and Granite Creek between Tickner Creek and Blue Granite Lake, *Norris* 52312; Trinity Co.: rivulet below East Weaver Lake, *Norris* 9406 and near Browns Meadows, *Norris* 23143.***Kiaeria falcata* (Hedwig) I. Hagen** [Dicranaceae]**Literature:** McGrew 1976.**Illustrations:** Smith 1978. As *Arctoa falcata* Lawton 1971.**Geographic subdivisions:** CaR, NW.**Selected specimens:** Siskiyou Co.: above confluence of drainages from Lower Russian and Golden Russian Lakes, Klamath National Forest, *McGrew* 360 (UC), near Paynes Lake, Klamath National Forest, *Norris* & *Smith* 46354 & 46376; Granite Creek between Tickner Creek and Granite Lake, *Norris* 52309, and eastern slopes of Little Grayback, *Holmberg* 942 (UC).***Kiaeria starkei* (Weber & D. Mohr) I. Hagen**

[Dicranaceae]

**Literature:** McGrew 1976.**Illustrations:** Crum and Anderson 1981; Ireland 1982; Smith 1978. As *Actoa starkei* Lawton 1971.**Geographic subdivisions:** CaR, NW, SN, SNE.**Selected specimens:** Del Norte Co.: slopes above Whiskey Lake, Siskiyou National Forest, *Norris* 57691 & 57713; Humboldt Co.: headwaters of Oregon Creek north of Trinity Summit Guard Station, *Norris* & *Creek* 50104; Inyo Co.: slopes above Treasure Lake west of Big Pine, John Muir Wilderness, Inyo National Forest, *Norris* 46941; Siskiyou Co.: trail to Long Gulch Lake southwest of Callahan, Klamath National Forest, *Norris* 57520; Trinity Co.: trail to Long Gulch Lake, Klamath National Forest, *Spjut*, *Norris*, & *J. Koponen* 6296 (UC).***Kindbergia oregana* (Sullivant) Ochyra**

[Brachytheciaceae]

**Literature:** Shevock and Toren 2001; Yurky 1990. As *Eurhynchium brittoniae* Koch 1950a; Lawton 1971. As *Eurhynchium oreganum* Holmberg 1969; Howe 1897; Jamieson 1969; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Smith 1970; Spjut 1971; Thomson and Ketchledge 1958; Yurky 1995. As *Hypnum oreganum* Lesquereux 1868; Sullivant 1856; Watson 1880. As *Stokesiella oregana* Bourell 1981; McGrew 1976; Toren 1977.**Illustrations:** Lawton 1971.**Geographic subdivisions:** CaR, CW, MP, NW, SN, SW.**Selected specimens:** Monterey Co.: Salmon Creek Trail, Santa Lucia Mountains, Los Padres National Forest, *Norris* 68223; San Francisco Co.: Mt. Davidson, *Shevock* 18923; Santa Barbara Co.: Windmill Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock* 20901; Shasta Co.: Highway 299 on north side of Haynes Flat about 3 miles west of Burney, *Norris* 68454; Siskiyou Co.: west of White Mountain near Cook and Green Pass, Klamath National Forest, *Norris* 50185; Sonoma Co.: Gualala River near Lee Noble Road, *Norris* 86977; Tulare Co.: Freeman Creek Grove, Lloyd Meadows Basin, Sequoia National Forest, *Shevock* 3890.***Kindbergia praelonga* (Hedwig) Ochyra**

[Brachytheciaceae]

**Literature:** Shevock and Toren 2001; Yurky 1990. As *Eurhynchium praelongum* Kellman 2003; Kingman 1912; Koch 1950a; McCleary 1972; Smith 1970; Spjut 1971; Stark and Whittemore 1992; Whittemore and Sommers 1999; Yurky 1995. As *Eurhynchium praelongum* var. *stokesii* Holmberg 1969; Lawton 1971; McCleary 1972. As *Eurhynchium stokesii* Jamieson 1969; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Spjut 1971. As *Hypnum stokesii* Lesquereux 1868; Watson 1880. As *Stokesiella praelonga* Bourell 1981; Harthill et al. 1979; Ireland 1982; Long 1978; Showers 1982; Toren 1977.**Illustrations:** Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978.**Geographic subdivisions:** CaR, CW, MP, NW, SN, SNE, SW.**Selected specimens:** Fresno Co.: Deer Cove Creek along Highway 180, South Fork Kings River, Sequoia National Forest, *Shevock* 12456; Humboldt Co.: Prairie Creek Redwood State Park, *Norris* 7940; Monterey Co.: Mill Creek Picnic Area, *Norris* 48571; Placer Co.: road to Bowman Lake about 2 miles north of Highway 20, *Norris* 77002; San Francisco Co.: Mt. Davidson, *Shevock* 18925; Santa Barbara Co.: Lobos Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock* & *Rodriquez* 20848; Shasta Co.: Shasta Lake at Interstate 5 near Bridge Mountain Road, Shasta-Trinity National Forest, *Norris* 72906.***Leptobryum pyriforme* (Hedwig) Wilson**

[Meesiaceae]

**Literature:** Cooke 1941; Coville 1893; Crum and Anderson 1981; Harpel 1980a; Harthill et al. 1979; Kellman 2003; Kingman 1912; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Long 1978; McGrew 1976; Mishler 1978; Shevock and Toren 2001; Showers 1982; Strid 1974; Toren 1977; Watson 1880. As *Bryum pyriforme* Lesquereux 1868; Sullivant 1856.**Illustrations:** Abramov and Volkova 1998; Allen



2002; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, DMoj, DSon, MP, NW, SN, SNE, SW.

**Selected specimens:** Inyo Co.: South Lake Road, 0.7 mile below South Lake, Inyo National Forest, *Shevock 12538* and Humingbird Spring near Rogers Peak, Death Valley National Park, *Shevock, York, and Davis 21374*; Lake Co.: west base of Goat Mountain near Addington Springs, Mendocino National Forest, *Toren & Dearing 7551* (CAS); Madera Co.: San Joaquin River below Red Creek, Devils Postpile National Monument, *Shevock & Dulen 21271*; Modoc Co.: near Post Canyon north of Adin, *Norris 47403*; Mono Co.: O'Harrel Canyon northeast of Lake Crowley, Glass Mountain, Inyo National Forest, *Shevock & York 19994*; Monterey Co.: near Wagon Caves Campground, Los Padres National Forest, *Norris 48551*; Riverside Co.: Forty Nine Palms Oasis near Twenty Nine Palms, *Norris 58025*; San Francisco Co.: Presidio of San Francisco, *Shevock 19366*; Siskiyou Co.: near Bear Lake, Klamath National Forest, *Norris 24197*.

***Leptodictyum humile* (Palisot de Beauvois)**

**Ochyra** [Amblystegiaceae]

**Literature:** As *Amblystegium trichopodium* Lawton 1971. As *Leptodictyum trichopodium* Harthill et al. 1979; Holmberg 1969; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Mishler 1978; Showers 1982; Strid 1974; Toren 1977.

**Illustrations:** Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, DMoj, NW, SN, SNE, SW.

**Selected specimens:** Fresno Co.: Kearsarge Lakes, Kings Canyon National Park, *Shevock 14333*; Inyo Co.: Johnson Canyon, Panamint Mountains, Death Valley National Park, *Shevock, Harpel, & York 19075*; Mariposa Co.: Crane Flat Meadow, Yosemite National Park, *Kellman 549* (CAS); Placer Co.: Highway 89, west shore of Lake Tahoe, USFS Lake Tahoe Management Unit, *Koch 1958* (UC); Tehama Co.: Tomhead Gulch, Shasta-Trinity National Forest, *Norris 56902*; Tulare Co.: shore of Oriole Lake, Sequoia National Park, *Norris, Shevock, & Barahona 87533*; Tuolumne Co.: Highway 108 at Frazier Flat Campground, Stanislaus National Forest, *Spjut, Norris, & J. Koponen 6253* (UC).

***Leptodictyum riparium* (Hedwig) Warnstorf**

[Amblystegiaceae]

**Literature:** Frantz and Cordone 1967; Harthill et al. 1979; Kellman 2003; Koch 1950a, 1958; Koch and Ikenberry 1954; McGrew 1976; Mishler 1978; Shevock and Toren 2001; Showers 1982; Strid 1974; Toren 1977; Yurky 1990, 1995. As *Amblystegium riparium* Kingman 1912; Lawton 1971; Spjut 1971. As *Hypnum riparium* Lesquereux 1868; Sullivant 1856; Watson 1880.

**Illustrations:** Buck 1998; Hedenäs 2003; Ireland

1982; Koponen et al. 1995; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SN, SNE, SW.

**Selected specimens:** Fresno Co.: below West Lake near Sand Flat, Sierra National Forest, *Shevock 14189*; Cedar Grove, Zumwalt Meadows along the South Fork Kings River, Kings Canyon National Park, *Shevock 13730*; Mendocino Co.: near Howard Lake, Mendocino National Forest, *Shevock & Isle 15903*; Mono Co.: Mormon Meadow along Highway 270, Bodie Hills, *Shevock 15246*; San Benito Co.: Pinnacles National Monument, *Blasdale s.n.* (UC); San Francisco Co.: Alamo Square, *Shevock 18909*; Shasta Co.: Bumpass Hell, Lassen Volcanic National Park, *Showers 861* (UC); Tulare Co.: Oriole Lake, Sequoia National Park, *Shevock 17619* (determined by Ochrya).

***Leptophascum leptophyllum* (C. Müller Hal.) J.**

**Guerra & M. J. Cano** [Pottiaceae]

**Literature:** As *Chenia leptophylla* Kellman 2003; Shevock and Toren 2001.

**Illustrations:** Arts and Sollman 1991; Guerra and Cano 2000; Guerra and Cros 2003. As *Chenia leptophylla* Zander 1993.

**Geographic subdivisions:** CW, GV.

**Selected specimens:** Merced Co.: banks of road about 0.5 mile east of Snelling along Merced River, *Norris 69844*; San Francisco Co.: Lincoln Blvd and 41st Street, Golden Gate Park, *Toren 2921* (CAS, SFSU); Santa Cruz Co.: Liddell Creek Fire Road at Highway 1 south of Davenport, *Kellman 755* (CAS, UC).

**\**Leptopterigynandrum austro-alpinum* C. Müller Hal.** [Leskeaceae]

**Illustrations:** Sharp et al. 1994.

**Geographic subdivisions:** DMoj.

**Selected specimens:** San Bernardino Co.: Kingston Peak, Kingston BLM Wilderness, Mojave Desert, *Laeger & Bogan 1759* (CAS).

**\**Lescuraea atricha* (Kindberg) Latwon**

[Leskeaceae]

**Illustrations:** Lawton 1957, 1971.

**Geographic subdivisions:** CaR.

**Selected specimens:** Siskiyou Co.: McCloud River Preserve, The Nature Conservancy, *Norris & Hill-yard 106544*.

***Lescuraea incurvata* (Hedwig) E. Lawton**

[Leskeaceae]

**Literature:** McGrew 1976; Spjut 1971. As *Lescuraea incurvata* var. *gigantea* Spjut 1971. As *Lescuraea incurvata* var. *tenuiretis* Spjut 1971.

**Illustrations:** Flowers 1973; Lawton 1957, 1971; Noguchi 1972; Smith 1978.

**Geographic subdivisions:** CaR, MP, NW, SN.

**Selected specimens:** Amador Co.: Caples Creek north of Kirkwood Lake, Eldorado National Forest, *Norris 82746*; Modoc Co.: Alcohol Crater Rim,

Modoc National Forest, *Harpel* 16329 (pers. herb.); Siskiyou Co.: near Taylor Lake, Klamath National Forest, *Norris* 83397 (confirmed by Krieger) and Clear Creek Trailhead, southeast slope of Mt. Shasta, Shasta-Trinity National Forest, *Norris & Hillyard* 104063 and Shackleford Creek Trail, Marble Mountain Wilderness, Klamath National Forest, *Norris & Hillyard* 104989; Tehama Co.: Battle Creek along Forest Road 29N35 about 4 miles east of Mineral, Lassen National Forest, *Norris* 48163 (confirmed by Krieger); Trinity Co.: Canyon Creek between Ripstein Camp and McKay Camp, *Norris* 8024 (confirmed by Krieger); Tulare Co.: along Forest Road 13S45 at tributary of Bearskin Creek, Sequoia National Forest, *Shevock & York* 13682.

**\**Lescuraea pallida* (Best) Norris & Shevock**  
*comb. nov.* [Leskeaceae]

*Lescuraea radicata* (Mitten) Mönkemeyer var. *pallida* (Best) E. Lawton. Bulletin Torrey Botanical Club 84:306. 1957. *Pseudoleskea radicata* (Mitten) Macoun & Kindberg var. *pallida* Best. Bulletin Torrey Botanical Club 27:227. 1900.

**Illustrations:** Lawton 1957, 1971.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Alpine Co.: Red Lake Creek, Toiyabe National Forest, *Norris* 88130; Inyo Co.: slopes of Treasure Lake west of Big Pine, John Muir Wilderness, Inyo National Forest, *Norris* 46968 (confirmed by Krieger); Mono Co.: Tioga Junction Campground about 2.5 miles north of Tioga Pass, Inyo National Forest, *Norris* 48348; Tulare Co.: Clover Creek east of Wuksachi Lodge, Sequoia National Park, *Shevock* 18278; Tuolumne Co.: Lower Young Lake, Yosemite National Park, *Messick* 674 (UC).

***Lescuraea patens* (Lindberg) Arnell & C. E. O. Jensen** [Leskeaceae]

**Literature:** Flowers 1973; Holmberg 1969; Jessup 2000; Lawton 1957, 1971; McGrew 1976; Spjut 1971. As *Pseudoleskea atrovirens* Cooke 1941; Koch 1950a. As *Pseudoleskea patens* Harthill et al. 1979; Koch 1958; Showers 1982; Strid 1974; Toren 1977.

**Illustrations:** Flowers 1973; Ireland 1982; Lawton 1957, 1971.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Alpine Co.: Tamarack Lake, Toiyabe National Forest, *Norris* 82777; Fresno Co.: north-face of Spanish Mountain, John Muir Wilderness, Sierra National Forest, *Shevock & York* 12424 (confirmed by Krieger); Glenn Co.: slopes of Black Butte, Mendocino National Forest, *Norris* 47973; Humboldt Co.: Tish-Tang-a-Tang Creek near Grogans Hole, Six Rivers National Forest, *Norris* 47826; Lake Co.: headwaters Bear Creek, Snow Mountain Wilderness, Mendocino National Forest, *Toren & Dearing* 7481 (CAS); Siskiyou Co.: Upper Cliff Lakes, Shasta-Trinity National

Forest, *Norris* 53034 and South Fork Russian River above Etna-Sawyers Bar Road, *Norris* 11891.

***Lescuraea radicata* (Mitten) Mönkemeyer**  
[Leskeaceae]

**Literature:** Flowers 1973; Lawton 1957, 1971; McGrew 1976; Spjut 1971. As *Pseudoleskea radicata* Harthill et al. 1979; Showers 1982.

**Illustrations:** Flowers 1973; Lawton 1957, 1971; Noguchi 1972.

**Geographic subdivisions:** CaR, MP, NW, SN.

**Selected specimens:** Del Norte Co.: Doctor Rock, Six Rivers National Forest, *Norris* 50319 (confirmed by Krieger); Humboldt Co.: headwaters of Oregon Creek north of Trinity Summit Guard Station, *Norris & Creek* 50101; Modoc Co.: Pine Creek Basin Trail, South Warner Wilderness, Modoc National Forest, *Harpel* 2232 (pers. herb.); Siskiyou Co.: Highway 49 about 7 miles east of Yuba Pass, *Lawton* 3151 (UC); Shasta Co.: Soda Creek Road about 3 miles NE of Interstate 5 near Dunsuir, Shasta-Trinity National Forest, *Norris* 84771 and Castle Lake at Castle Lake Creek, southwest of Mt. Shasta City, *Norris & Hillyard* 103842; Siskiyou Co.: Big Boulder Lake west of Carrville, *Norris & Streimann* 74803; Trinity Co.: Long Gulch Lake, Trinity Alps Wilderness, Klamath National Forest, *Spjut, Norris, & J. Koponen* 6290 (UC).

**\**Lescuraea saviana* (De Notaris) E. Lawton**  
[Leskeaceae]

**Illustrations:** Lawton 1957, 1971.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Del Norte Co.: exit of Sanger Lake southeast of O'Brien, Six Rivers National Forest, *Norris* 70780; Shasta Co.: Forest Road 39N07 along Soda Creek about 6 miles northeast of Interstate 5 south of Dunsuir, Shasta-Trinity National Forest, *Norris & Hillyard* 103836; Siskiyou Co.: trail to English Lake, Klamath National Forest, *Spjut* 1473 (UC); Trinity Co.: Canyon Creek between Ripstein Camp and McKay Camp, *Norris* 8033; Tulare Co.: near the Ponderosa Resort, eastern base of Slate Mountain, Sequoia National Forest, *Shevock* 15656.

***Lescuraea stenophylla* (Renauld & Cardot) Lindberg** [Leskeaceae]

**Literature:** Holmberg 1969; Spjut 1971. As *Pseudoleskea rigescens* Howe 1896; Koch 1950a.

**Illustrations:** Lawton 1957, 1971.

**Geographic subdivisions:** CaR, MP, NW.

**Selected specimens:** Del Norte Co.: Bear Basin Creek north of Bear Basin Butte, *Norris* 68878 & 68882; Humboldt Co.: Long Ridge near headwaters of Bunch Grass Creek, Hoopa Valley Indian Reservation, *Norris* 47806; Modoc Co.: Big Valley Mountains, *Baker & Nutting* 43 (UC); Siskiyou Co.: west branch of Sutcliffe Creek about 13 miles northwest of Happy Camp, Klamath National Forest, *Norris* 83291 & 83298 and above Neals Camp,



Mt. Shasta, Shasta-Trinity National Forest, *Howe 115* (UC).

***Leskea polycarpa* Ehrhart ex Hedwig**  
[Leskeaceae]

**Literature:** McGrew 1976.

**Illustrations:** Ireland 1982; Lawton 1971; Noguchi 1972; Smith 1978.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Alpine Co.: Pacific Creek at Pacific Valley Campground, Highway 4 east of Pacific Grade Summit, Stanislaus National Forest, *Norris 77201*; Del Norte Co.: Bear Basin Butte, *Norris 8093b*; Fresno Co.: east base Maxson Dome near Courtwright Reservoir, John Muir Wilderness, Sierra National Forest, *Shevock & York 17444*; Humboldt Co.: South Fork Mountain Road near Doe Spring about 7 air miles north of Mad River, Six Rivers National Forest, *Norris 84072*; Tulare Co.: Western Divide, Peppermint Creek, Sequoia National Forest, *Laeger 290* (CAS).

***Leucolepis acanthoneura* (Schwägrichen)**  
**Lindberg** [Mniaceae]

**Literature:** Howe 1897; Yurky 1990, 1995. As *Leucolepis menziesii* Bourell 1981; Holmberg 1969; Jamieson 1969; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Smith 1970; Spjut 1971; Steere et al. 1954; Thomson and Ketchledge 1958; Toren 1977. As *Mnium menziesii* Bradshaw 1926; Lesquereux 1868; Sullivant 1856; Watson 1880.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Calaveras Co.: Moran Creek about 1 mile north of Avery, Stanislaus National Forest, *Wagner Jr. 4360a* (UC); El Dorado Co.: Bear Creek Picnic Area south-southwest of Georgetown, Eldorado National Forest, *Norris & Piippo 82338*; Humboldt Co.: between Cal Barrel Road and Elk Grove Park Headquarters, Prairie Creek Redwoods State Park, *Shevock 16741*; Madera Co.: Minarets Road at Rock Creek, Sierra National Forest, *Shevock & Kellman 19772*; Nevada Co.: tributary of Washington Creek 4.2 miles from Highway 20, Tahoe National Forest, *Shevock & Toren 20742*; Santa Cruz Co.: near George's Campground, Forest of Nisene Marks State Park east of Aptos, Santa Cruz Mountains, *Whittemore 4038* (CAS); Siskiyou Co.: Elliott Creek near Seattle Bar, Rogue River National Forest, *Shevock & Toren 20083*; Trinity Co.: Highway 36 at Swift Creek, Shasta-Trinity National Forest, *Norris 56551*.

**\**Lorentziella imbricata* (Mitten) Brotherus**  
[Gigaspemaceae]

**Illustrations:** Lawton 1953; Rushing and Snider 1980; Sharp et al. 1994.

**Geographic subdivisions:** SW.

**Selected specimens:** San Diego Co.: San Dieguito River Park, Bernardo Rancho, *D. Baltzo s.n.* (UC).

**\**Meesia longiseta* Hedwig** [Meesiaceae]

**Illustrations:** Abramov and Volkova 1998; Allen 2002; Crum and Anderson 1981; Ignatov and Ignatova 2003; Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** CaR, SN.

**Selected specimens:** Nevada Co.: about 0.5 mile northeast of Bowman Lake, Tahoe National Forest, *Ahart 10609* (UC); Plumas Co.: Willow Lake northwest of Chester, Lassen National Forest, *Norris 96251*; Tuolumne Co.: about 2 miles east of Tuolumne Meadows toward Tioga Pass, Yosemite National Park, *Norris 100353*.

***Meesia triquetra* (H. Richter) Ångström**  
[Meesiaceae]

**Literature:** Crum and Anderson 1981; Howe 1896; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Montagnes 1990.

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN, SW.

**Selected specimens:** Butte Co.: Chico Creek, *Austin 229* (UC); El Dorado Co.: Grass Lake, Highway 89 west of Luther Pass and south of Lake Tahoe, Eldorado National Forest, *Norris 71312 & 79049* and *Koch & Stebbins 2316* (UC); Fresno Co.: between House and Ahart Meadows, west of Wishon Reservoir, Sierra National Forest, *Shevock & Bourell 14041* and west of Kaiser Pass, Kaiser Wilderness, Sierra National Forest, *Shevock 20989*; Humboldt Co.: near McClellan Mountain about 5 miles east of Bridgeville, *Norris 45819*; Lassen Co.: East of Humbug Pass, Plumas National Forest, *Shevock & Erter 19887*; Nevada Co.: Mason's Bog at Sagehen, Tahoe National Forest, *Toren 1438* (SFSU); Riverside Co.: Wellmans Cienega, San Jacinto Mountains, San Jacinto State Park, *Shevock, Kramer, Hall, & Ward 24069*; Sierra Co.: Secret Meadow east of Independence Lake, Tahoe National Forest, *Norris 99457*; Siskiyou Co.: Sisson near Mt. Shasta, *Howe 102* (UC); Tulare Co.: Log Meadow near Crescent Meadow, Giant Forest, Sequoia National Park, *Shevock 16678*.

***Meesia uliginosa* Hedwig** [Meesiaceae]

**Literature:** Crum and Anderson 1981; Howe 1896; Koch 1950a; Lawton 1971; Lesquereux 1868; Watson 1880.

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Ochyra 1998a; Smith 1978.

**Geographic subdivisions:** CaR, SN, SW.

**Selected specimens:** Fresno Co.: between Wet Meadow and Spanish Lake, John Muir Wilderness, Sierra National Forest, *Shevock 14153*; Sierra Co.: Secret Meadow east of Independence Lake, Tahoe National Forest, *Norris 99466*; Riverside Co.: Wellmans Cienega, east side of Marion Mountain, San Jacinto State Park, *Wheeler 7901* (CAS, DUKE,

UC) [determined by Shaw]; Siskiyou Co.: Sisson near Mt. Shasta, *Howe 117* (UC); Tulare Co.: South Mountaineer Creek at Summit Trail, Golden Trout Wilderness, Sequoia National Forest, *Shevock 14245*; Unspecified county: *Bolander 90* (UC).

***Meiotrichum lyallii* (Mitten) G. L. S. Merrill**  
[Polytrichaceae]

**Literature:** As *Oligotrichum lyallii* Watson 1880. As *Polytrichadelphus lyallii* Flowers 1973; Holmberg 1969; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Spjut 1971. As *Polytrichastrum lyallii* McGrew 1976. As *Polytrichum lyallii* Lesquereux 1868; Showers 1982; Toren 1977.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Glenn Co.: slopes of Black Butte, Mendocino National Forest, *Norris 47974*; Humboldt Co.: Oregon Creek north of Trinity Summit Guard Station, *Norris & Creek 50144*; Lake Co.: Cedar Camp, Snow Mountain Wilderness, Mendocino National Forest, *Toren & Dearing 7491* (CAS); Mariposa Co.: Glacier Point Road about 1.2 miles east of Bridalveil Campground, Yosemite Park, *Norris & Shevock 100330*; Plumas Co.: Gibsonville Ridge, crest of Quincy-LaPorte Road, Plumas National Forest, *Norris 83162*; Siskiyou Co.: Jaynes Creek northwest of Klamath River, *Norris 48698*; Tulare Co.: Big Meadows Road, 0.2 mile east of Rabbit Meadow Road, Sequoia National Forest, *Shevock 10864*.

***Metaneckera menziesii* (Drummond) W. C. Steere** [Neckeraceae]

**Literature:** Bourell 1981; Holmberg 1969; Jamieson 1969; Kellman 2003; Showers 1982; Spjut 1971; Steere 1967; Toren 1977; Yurky 1990, 1995. As *Neckera menziesii* Flowers 1973; Lawton 1971; Lesquereux 1868; Watson 1880. As *Neckeradelphus menziesii* Koch 1950a, 1951e; Koch and Ikenberry 1954; Steere 1941; Thomson and Ketchledge 1958.

**Illustrations:** Flowers 1973; Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** El Dorado Co.: Sly County Park, *Norris 58585*; Humboldt Co.: Redwood Creek near Orick, Redwood National Park, *Norris 22363*; Lake Co.: Cold Creek west of Low Gap between Sheetiron Mountain and Snow Mountain, Mendocino National Forest, *Shevock, Toren, & Dearing 18791*; Mariposa Co.: Highway 41 near Wawona Entrance Station, Yosemite National Park, *Shevock 21437*; Santa Cruz Co.: Laguna Creek, Wilder Ranch State Park, *Kellman 1862* (CAS); Shasta Co.: Fall Creek Road about 1 mile southeast of McCloud Bridge at Shasta Lake, Shasta-Trinity National Forest, *Norris 84858*; Sonoma Co.: Wolf Creek Road about 4 miles east of Gualala, *Norris 86962*; Tulare Co.: Lake Canyon about 0.5 mile below Oriole Lake, Sequoia National Park, *Shevock 17611*.

***Microbryum davallianum* (J. E. Smith in Drake) Zander** [Pottiaceae]

**Literature:** Kellman 2003. As *Pottia davalliana* Crum and Anderson 1981. As *Pottia minutula* Lesquereux 1868; Lesquereux and James 1884.

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Williams 1961.

**Geographic subdivisions:** CW.

**Selected specimens:** Alameda Co.: just below Little Yosemite, Canyon View Trail and Camp Ohlone Road, Sunsol Regional Wilderness, *Whittemore 5454* (MO); Monterey Co.: Sam Jones Road about 1 km east of Piojo Airstrip, Hunter-Liggett Military Reservation, *Norris 87249, 87251, & 87252*; Santa Cruz Co.: Englesman Loop Trail, Wilder Ranch State Park, *Kellman 2254* (CAS) and Yellow Bank Creek near Highway 1, *Kellman 2091* (CAS).

***Microbryum starkeanum* (Hedwig) Zander**  
[Pottiaceae]

**Literature:** Kellman 2003; Shevock and Toren 2001. As *Anacalypta starkeana* Lesquereux 1868. As *Pottia arizonica* Harthill et al. 1979; Koch 1950a; McCleary 1972; Steere 1954. As *Pottia arizonica* var. *mucronulata* Crum 1957; Flowers 1973. As *Pottia fosbergii* Bartram 1930; Koch 1950a. As *Pottia starkeana* Brandegee 1891; Howe 1896, 1897; Harthill et al. 1979; Koch 1950a; Lesquereux 1868; Lesquereux and James 1884; Toren 1977; Watson 1880; Whittemore and Sommers 1999. As *Pottia texana* Crum 1969; Crum and Anderson 1981.

**Illustrations:** Flowers 1973; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, DMoj, DSon, SN, SW.

**Selected specimens:** Alameda Co.: Del Valle Road at the eastern border of Del Valle Regional Park about 10 miles south of Livermore, *Whittemore 3361* (MO) [determined by Zander]; Fresno Co.: Dinkey-Trimmer Road east of Haslett Basin, Sierra National Forest, *Norris, Shevock, & Barahona 87476 & 87477*; Lake Co.: near Hell's Peak, *Toren 786* (SFSU, UC); Riverside Co.: below Bighorn Overlook along Highway 74, eastern boundary of San Bernardino National Forest, *Norris 57836*, and 8 miles west of Desert Center on road to Twenty-Nine Palms, *Norris 57930*; San Diego Co.: Box Willow Canyon Campground, Anza Borrego State Park, *Norris 77718 & 77734*; San Luis Obispo Co.: Lynch Canyon Road about 3 miles from Interlake Road south of San Antonio Reservoir, *Norris 85171*; San Mateo Co.: Edgewood Trail, Edgewood County Park, *Whittemore 5345* (MO); Tehama Co.: Antelope Creek Canyon about 10 miles east of Red Bluff along Bell Mine Road, *Berti 419a* (UC).

***Mielichhoferia elongata* (Hoppe & Hornschuch in W. J. Hooker) Nees & Hornschuch**  
[Mielichhoferiaceae]

**Literature:** Brassard and Hedderson 1989; Hartman 1969; Kellman 2003; Shaw 1994a, 1994b. As



*Mielichhoferia mielichhoferiana* Andrews 1932a; Crum 1957; Schofield 1959; Shaw et al. 1992. As *Mielichhoferia mielichhoferi* McGrew 1976. As *Mielichhoferia* sp. Thomson and Ketchledge 1958. **Illustrations:** Crum 1957; Shacklette 1967; Smith 1978.

**Notes:** Based on DNA studies conducted by Jon Shaw, this taxon is worthy of recognition at the species level. All specimens attributed as *Mielichhoferia mielichhoferiana* or *M. mielichhoferi* from California are this taxon.

**Geographic subdivisions:** CaR, CW, NW, SN. **Selected specimens:** Fresno Co.: Secate Ridge, Pine Flat Reservoir, Sierra National Forest, *Shevock & York 12604*; Humboldt Co.: Highway 96 near Skunk Creek about 3 miles south of Weitchpec, *Norris 58310*; Lake Co.: sulfur hot spring near Anderson Springs, *Toren & Dearing 7256* (CAS); Marin Co.: Pt. Reyes Bird Observatory about 5 miles north of Bolinas, *Robertson 1690a* (CAS); Mariposa Co.: Highway 140 near El Portal, *Shevock 19511*; Nevada Co.: Shady Creek between Nevada City and North San Juan, *Toren 1807* (SFSU, UC); Placer Co.: Drum Powerhouse Road between Dam and town of Dutch Flat, Tahoe National Forest, *Shevock & Norris 20668*; Santa Cruz Co.: Greyhound Rock, Highway 1, *Shevock & Ng 18442*; Trinity Co.: Highway 299 near junction to Old Helena, Trinity River, Shasta-Trinity National Forest, *Shevock, Lin, & Chen 17740*.

***Mielichhoferia tehamensis* Showers**  
[Mielichhoferiaceae]

**Literature:** Brassard and Hedderson 1983; Showers 1980, 1982.

**Illustrations:** Showers 1980.

**Geographic subdivisions:** CaR.

**Selected specimens:** Shasta Co.: Lassen Volcanic National Park, Crescent Cliffs, *Showers 3904* (CAS), West Fork Hat Creek, *Showers 3644* (SFSU), Pilot Pinnacle, *Showers 3769* (SFSU), Brokeoff Mountain, *Showers 2745* (SFSU); Tehama Co.: Mt. Conard, Lassen Volcanic National Park, *Showers 3350* (CAS, MICH, SFSU).

**\**Mnium arizonicum* Amann** [Mniaceae]

**Illustrations:** Flowers 1973; Koponen 1972; Lawton 1971; Sharp et al. 1994. See also Bowers 1969.

**Geographic subdivisions:** MP, SN, SNE.

**Selected specimens:** Inyo Co.: near Hearst Lake on trail from Onion Valley to Kearsarge Pass, John Muir Wilderness, Inyo National Forest, *Norris 46758*; Modoc Co.: north end Patterson Lake, South Warner Wilderness, Modoc National Forest, *Harpel 2250* (pers. herb.); Tulare Co.: Cabin Creek Meadow near General's Highway, Sequoia National Park, *Dennis s.n.* (CAS, UC).

**\**Mnium blyttii* Bruch & W. P. Schimper**  
[Mniaceae]

**Illustrations:** Flowers 1973; Lawton 1971.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Alpine Co.: near Winnemucca Lake, Mokelumne Wilderness, Eldorado National Forest, *Norris 71207*; Shasta Co.: lava tube near Old Station, Hat Creek Valley, Lassen Volcanic National Park, *Showers 1931* (UC); Siskiyou Co.: Canyon Creek, Marble Mountain Wilderness, Klamath National Forest, *Tucker 3776* (UC) [determined by Steere]; Tulare Co.: headwaters of the Little Kern River, Golden Trout Wilderness, Sequoia National Forest, *Norris 67937 & 67945*.

***Mnium marginatum* (Dickson ex Withering)**  
**Palisot de Beauvois** [Mniaceae]

**Literature:** Crum and Anderson 1981; Flowers 1973; Harthill et al. 1979; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Showers 1982.

**Illustrations:** Abramov and Volkova 1998; Allen 2002; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CW, NW, SN, SNE, SW. **Selected specimens:** Alpine Co.: Silver Creek at Carson River, Toiyabe National Forest, *Norris 78983* and near Winnemucca Lake, Mokelumne Wilderness, Eldorado National Forest, *Norris 71258*; El Dorado Co.: Highway 50 along South Fork American River at Bridal Veil Falls Campground, Eldorado National Forest, *Norris 58402*; Fresno Co.: Cedar Grove at Sheep Creek, South Fork Kings River, Kings Canyon National Park, *Shevock 13753*; Mono Co.: Lee Vining Creek about 0.5 mile above Highway 395, *Koch 1766* (MO, UC); Riverside Co.: Indian Creek above UC James Reserve, San Jacinto Mountains, San Bernardino National Forest, *Harpel 1397* (pers. herb.); Santa Cruz Co.: Big Creek near Davenport, *Kellman 1500* (CAS); Siskiyou Co.: Long Gulch Lake southwest of Callahan, Klamath National Forest, *Norris 57527*.

***Mnium spinulosum* Bruch & W. P. Schimper**  
[Mniaceae]

**Literature:** Lesquereux 1868.

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Koponen 1973b; Lawton 1971.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Del Norte Co.: slopes above Whiskey Lake, Siskiyou National Forest, *Norris 57725*; Fresno Co.: Taboose Pass Trail, headwaters of South Fork Kings River, Kings Canyon National Park, *Shevock 13851*; Inyo Co.: slopes above Treasure Lake west of Big Pine, John Muir Wilderness, Inyo National Forest, *Norris 46951*; Siskiyou Co.: about 1 mile east of Copper Butte, *Norris 50218*; Tehama Co.: fork of Beegum Creek off of Forest Road 35 about 1.5 miles west of Rat Trap Gap, Shasta-Trinity National Forest, *Norris 57003*.

***Mnium thomsonii* W. P. Schimper** [Mniaceae]

**Literature:** Crum and Anderson 1981; McGrew 1976. As *Mnium orthorrhynchum* Koch 1950a; Showers 1982; Spjut 1971.

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Koponen 1972; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SN, SNE.

**Selected specimens:** El Dorado Co.: Silver Fork Campground along Silver Fork American River, Eldorado National Forest, *Norris* 82915; Fresno Co.: Grizzly Creek at junction with South Fork Kings River along Highway 180, Sequoia National Forest, *Shevock* 12445; Lake Co.: Alder Creek, Cobb Mountain, *Toren & Dearing* 7089 (CAS) [determined by Wyatt]; Marin Co.: trail near Mud Lake, Point Reyes National Seashore, *Norris* 71833; Mono Co.: Lundy Lakes Trail along Mill Creek, Toiyabe National Forest, *Norris* 78903; Tuolumne Co.: Mill Creek below Cascade Creek Campground, Stanislaus National Forest, *Norris* 78823.

***Molendoa sendtneriana* (Bruch & W. P. Schimper) Limpricht** [Pottiaceae]

**Literature:** Zander 1977a. As *Anoetangium obtusifolium* Harthill et al. 1979; McCleary 1972; Steere 1954.

**Illustrations:** Allen 2002; Ignatov and Ignatova 2003; Iwatsuki and Sharp 1958; Saito 1975; Sharp et al. 1994.

**Geographic subdivisions:** SN, SW.

**Selected specimens:** Los Angeles Co.: near White's Landing, Santa Catalina Island, *Steere* s.n. (UBC); Placer Co.: Bowman Lake west of Truckee, *Norris* 76949.

***\*Myurella julacea* (Schwägrichen in Schultes) Bruch & W. P. Schimper** [Pterigynandraceae]

**Illustrations:** Ignatov et al. 1996; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** SNE.

**Selected specimens:** Inyo Co.: slopes near Dragon Peak near Onion Valley, John Muir Wilderness, Inyo National Forest, *Norris* 46751b and Lake Sabrina Basin, Inyo National Forest, *Shevock* 15288.

***Neckera douglasii* W. J. Hooker** [Neckeraceae]

**Literature:** Bourell 1981; Bradshaw 1926; Holmberg 1969; Jamieson 1969; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Smith 1970; Thomson and Ketchledge 1958; Watson 1880; Yurky 1990, 1995.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW.

**Selected specimens:** Lake Co.: Bucknell Creek north of Horse Mountain, Mendocino National Forest, *Toren* 7453a (CAS); Marin Co.: trail near Mud Lake, Point Reyes National Seashore, *Norris* 71817; Mendocino Co.: County Road 409 about 1 mile east of Highway 1 south of Fort Bragg, *Norris*

11711; Santa Barbara Co.: Hollister Ranch, Gaviota Coast, *P. Huebner* s.n. (SBBG); Santa Cruz Co.: Opal Creek, Big Basin Redwood State Park, *Kellman* 1008 (CAS); Shasta Co.: Dog Creek Road about 3 miles west of Interstate 5, *Norris & Hermann* 22538; Siskiyou Co.: Elk Creek at Malone Creek south of Happy Camp, *Norris* 52232.

***Oncophorus virens* (Hedwig) Bridel** [Dicranaceae]

**Literature:** Cooke 1941; Crum and Anderson 1981; Flowers 1973; Holmberg 1969; Koch 1950a, 1958; Lawton 1971; McGrew 1976; Showers 1982; Spjut 1971. As *Dicranum virens* var. *compactum* Lesquereux and James 1884. As *Dicranum virens* var. *serratum* Lesquereux 1868; Watson 1880.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** El Dorado Co.: Round Meadow about 3 miles southeast of Sayles Canyon Trailhead, Eldorado National Forest, *Norris* 71056 & 71060; Fresno Co.: outlet of fifth Baxter Lake, Kings Canyon National Park, *Shevock & York* 16582; Humboldt Co.: Kneeland, *Tracy* 14806 (UC); Mono Co.: Mildred Lake about 3 miles above Convict Lake, John Muir Wilderness, Inyo National Forest, *Norris* 71396 and Gardisky Lake west of Lee Vining, Inyo National Forest, *Norris* 104209; Siskiyou Co.: Waterdog Lake, Klamath National Forest, *McGrew* 493 (UC).

***\*Oncophorus wahlenbergii* Bridel** [Dicranaceae]

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Inyo Co.: Baxter Pass Trail, Bighorn Sheep Zoological Area, John Muir Wilderness, Inyo National Forest, *Shevock & York* 16613 and trail from Onion Valley to Robinson Lake west of Independence, Inyo National Forest, *Norris* 46670 and slopes above George Lake west of Bishop, John Muir Wilderness, Inyo National Forest, *Norris* 71437.

***Orthodicranum tauricum* (Sapelin) Smirnova** [Dicranaceae]

**Literature:** Shevock and Toren 2001. As *Dicranum strictum* Howe 1896; Lesquereux 1868; Thomson and Ketchledge 1958; Watson 1880. As *Dicranum tauricum* Bourell 1981; Flowers 1973; Holmberg 1969; Jamieson 1969; Kellman 2003; Lawton 1971; McGrew 1976; Showers 1982; Smith 1970; Spjut 1971; Toren 1977; Yurky 1990. As *Orthodicranum strictum* Koch 1950a, 1951e; Koch and Ikenberry 1954.

**Illustrations:** Abramov and Volkova 1998; Enroth 1989; As *Dicranum tauricum* Flowers 1973; Ignatov and Ignatova 2003; Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW, SN.



**Selected specimens:** Del Norte Co.: between Wilderness Falls to Doe Flat, *Norris* 67761; El Dorado Co.: Sly Park Creek, *Norris* 58574; Marin Co.: Cataract Trail near Alpine Lake, *Yurky* 1050 (SFSU); Mendocino Co.: Highway 101 at Cummings turn-off, milepost 84.91, *Norris* 21639; Santa Cruz Co.: Zayante Canyon Road north of Felton, *Norris* 86874; Siskiyou Co.: Cedar Basin, South Fork Sacramento River, Shasta-Trinity National Forest, *Shevock* 12227; Tulare Co.: Redwood Mountain Grove, trail at Redwood Creek, Kings Canyon National Park, *Shevock* 17483.

***Orthodontium gracile* (Wilson in J. E. Smith) Schwägrichen ex Bruch & W. P. Schimper**  
[Orthodontiaceae]

**Literature:** Christy and Wagner 1996; Holmberg 1969; Jamieson 1969; Kellman 2003; Koch 1950a, 1951d; Lawton 1971; Smith 1970; Steere et al. 1954; Yurky 1990, 1995. As *Stableria gracilis* Andrews 1932b; Howe 1897. As *Stableria gracilis* var. *californica* Andrews 1932b; Howe 1897.

**Illustrations:** Andrews 1935; Lawton 1971; Meijer 1951; Sharp et al. 1994. As *Stableria gracilis* Brotherus 1924–1925.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Del Norte Co.: Damnation Creek Trail, Del Norte Coast Redwoods State Park, *Norris* 46231; Humboldt Co.: Foothill Trail, Prairie Creek Redwoods State Park, *Norris* 46024; Marin Co.: Sir Francis Drake Blvd. Near Nicasio Valley Road, *Robertson s.n.* (CAS); Monterey Co.: Big Sur River, Big Sur State Park, *Koch* 3662 (MO, UC); Mendocino Co.: about 2 miles east of Fort Bragg, *Norris* 12041; San Mateo Co.: near Little Butano Creek, Butano State Park, *Whittemore* 4016 (MO); Santa Cruz Co.: Forest of Nisene Marks State Park south of Santa Cruz, *Norris* 55640 & 55644; Sonoma Co.: Forest Theatre, Armstrong Grove, Redwood Park, *Koch* 3466 (UC).

***Orthodontium pellucens* (W. J. Hooker) Bruch & W. P. Schimper in C. Müller Hal.**  
[Orthodontiaceae]

**Literature:** Crum and Anderson 1981; Holmberg 1969; Koch 1949a, 1950a.

**Illustrations:** Crum and Anderson 1981; Sharp et al. 1994.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Del Norte Co.: Stout Memorial Grove, Jedediah Smith Redwoods State Park, *Koch* 3809 (UC); Humboldt Co.: near Elk Grove Park Headquarters, Prairie Creek Redwoods State Park, *Shevock* 16735 and along Prairie Creek, *Norris* 68375; Monterey Co.: Big Sur State Park, *Bartlett* 3 (UC).

***Orthotrichum affine* Schader ex Bridel**  
[Orthotrichaceae]

**Literature:** Flowers 1973; Harpel 1980a; Harthill et al. 1979; Koch 1950a; Lawton 1971; Moxley

1937; Showers 1982; Spjut 1971; Steere et al. 1954; Yurky 1990, 1995.

**Illustrations:** Flowers 1973; Ignatov and Ignatova 2003; Lawton 1971; Smith 1978; Vitt 1973.

**Geographic subdivisions:** CaR, MP, NW, SN, SW.  
**Selected specimens:** Mendocino Co.: road to Plaskett Meadows about 1 mile south of Mendocino Pass, Mendocino National Forest, *Norris* 19570; Modoc Co.: road to Whitehorse Flat about 3 miles north of Day, Shasta-Trinity National Forest, *Norris* 84733; Sierra Co.: Highway 49 between Bassetts and Sierra City, Tahoe National Forest, *Kellman* 262 (CAS); Trinity Co.: Rush Creek about 1 mile below Rush Creek Lakes, Trinity Alps Wilderness, Shasta-Trinity National Forest, *Norris* 85377; Tulare Co.: Forest Trail 31E18 at Galena Creek, Sequoia National Forest, *Shevock* 9080; Ventura Co.: Potrero John Creek near Highway 33, Los Padres National Forest, *Norris* 55525.

***Orthotrichum alpestre* Hornschuch ex Bruch & W. P. Schimper** [Orthotrichaceae]

**Literature:** Flowers 1973; Harpel 1980a; Harthill et al. 1979; Koch 1950a; McGrew 1976; Showers 1982; Spjut 1971; Strid 1974; Watson 1880.

**Illustrations:** Flowers 1973; Ignatov and Ignatova 2003; Ignatov and Lewinsky-Haapasaari 1994; Lawton 1971; Vitt 1973.

**Geographic subdivisions:** CaR, MP, NW, SN, SNE, SW.

**Selected specimens:** Alpine Co.: Silver Creek at Carson River, Toiyabe National Forest, *Norris* 78959; Lassen Co.: Termo-Grasshopper Road about 12 miles west of Termo, *Norris & Hermann* 22641; San Diego Co.: about 1 mile north of Cuyamaca State Park Headquarters, *Norris* 50729; Siskiyou Co.: about 1 mile south of Big Flat, *Norris* 9228; Tulare Co.: just north of Kennedy Meadows Campground adjacent to the South Fork Kern River, South Sierra Wilderness, Inyo National Forest, *Shevock* 14805; Tuolumne Co.: Herring Creek Road below Forest Service Road 4N12, west-northwest of Strawberry, Stanislaus National Forest, *Norris* 100420.

***Orthotrichum bolanderi* Sullivant**  
[Orthotrichaceae]

**Literature:** Harthill et al. 1979; Kingman 1912; Koch 1950a; Koch and Ikenberry 1954; Lesquerieux and James 1884; Long 1978; Steere et al. 1954; Thomson and Ketchledge 1958; Toren 1977; Watson 1880; Yurky 1990, 1995.

**Illustrations:** Sharp et al. 1994; Vitt 1973.

**Geographic subdivisions:** CaR, CW, NW, SN, SW.  
**Selected specimens:** Butte Co.: Big Chico Creek at northeast boundary of Bidwell Park, *Norris* 70085; Monterey Co.: Salmon River bridge south of Pinnacles, Hunter-Liggett Military Reservation, *Norris* 87316; Placer Co.: Clover Valley Creek at Sierra College Road, *Norris* 81945; Riverside Co.: Mesa de Colorado, Santa Rosa Plateau, southern Santa Ana Mountains, *Shevock* 4273; Sonoma Co.:

summit ridge behind Armstrong Park, *Koch 3534* (UC); Tulare Co.: Elk Creek near Potwisha Campground, Middle Fork Kaweah River, Sequoia National Park, *Shevock, Norris, & Barahona 13184*.

***Orthotrichum consimile* Mitten** [Orthotrichaceae]

**Literature:** Harthill et al. 1979; Holmberg 1969; Howe 1896; Jamieson 1969; Koch 1950a; Lawton 1971; Lesquereux 1868; Moxley 1928; Shevock and Toren 2001; Yurky 1990, 1995. As *Orthotrichum columbicum* Lesquereux 1868.

**Illustrations:** Lawton 1971; Lewinsky-Haapasaari et al. 1995; Vitt 1973.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Del Norte Co.: French Hill Road about 2.5 miles above Highway 199 southwest of Gasquet, Six Rivers National Forest, *Norris 85053*; Humboldt Co.: Blue Lake, *Howe 1016* (UC) and Arcata Community Forest, *Silver 731* (UC); Lake Co.: Summit Lake near Mt. Sanhedrin, Mendocino National Forest, *Toren & Dearing 7212* (CAS); Marin Co.: Olema, Point Reyes National Seashore, *Howe 74 & 81* (UC); San Francisco Co.: Panhandle of Golden Gate Park, *Shevock 18932*.

***Orthotrichum cupulatum* G. F. Hoffman ex Bridel** [Orthotrichaceae]

**Literature:** Bourell 1981; Flowers 1973; Kellman 2003; Koch 1950a; Lesquereux 1868; Toren 1977; Watson 1880.

**Illustrations:** Flowers 1973; Ignatov and Ignatova 2003; Ignatov and Lewinsky-Haapasaari 1994; Lawton 1971; Sharp et al. 1994; Smith 1978; Vitt 1973.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SNE.

**Selected specimens:** Alpine Co.: Silver Creek at Carson River, Toiyabe National Forest, *Norris 78988*; Fresno Co.: Boyden Cave adjacent to South Fork Kings River and Highway 180, Sequoia National Forest, *Shevock & York 17200*; Lake Co.: Summit Springs Trail, Snow Mountain Wilderness, Mendocino National Forest, *Toren & Dearing 7521* (CAS); Humboldt Co.: near Showers Pass, *Norris 8654*; Mendocino Co.: Ukiah Hot Springs, *Bolander s.n.* (UC); Santa Cruz Co.: Blue Cliff, Fall Creek, Division of Henry Cowell State Park, *Kellman 657* (CAS); Shasta Co.: Fall Creek Road about 1 mile southeast of McCloud Bridge at Shasta Lake, Shasta-Trinity National Forest, *Norris 84870* and Highway 299 about 1 mile south of Montgomery Creek, *Norris 68598*.

***Orthotrichum diaphanum* Schrader ex Bridel** [Orthotrichaceae]

**Literature:** Kellman 2003; Shevock and Toren 2001.

**Illustrations:** Ignatov and Ignatova 2003; Lewinsky 1984; Sharp et al. 1994; Smith 1978; Vitt 1973.

**Geographic subdivisions:** CW, SW.

**Selected specimens:** Alameda Co.: UC Berkeley Campus, *Norris 100334*; Los Angeles Co.: Me-

morial Park, Claremont, *Harpel 890* (pers. herb.); San Bernardino Co.: Paris Hill City Park, City of San Bernardino, *Harpel 1688* (pers. herb.); San Diego Co.: El Monte Road about 1 mile east of El Monte Park, *Norris & Piippo 82150* and San Clemente Canyon at Genesee Road, City of San Diego, *Norris 50712*; San Francisco Co.: Panhandle, Golden Gate Park, *Toren 7795* (CAS) and *Shevock 18931*; Santa Cruz Co.: San Lorenzo Park, City of Santa Cruz, *Kellman 967* (CAS).

***Orthotrichum euryphyllum* Venturi in Röll** [Orthotrichaceae]

**Literature:** Lewinsky-Haapasaari and Norris 1998a. As *Orthotrichum epapillosum* Lawton and Hermann 1973.

**Illustrations:** Lewinsky-Haapasaari and Norris 1998a.

**Geographic subdivisions:** CaR, MP.

**Selected specimens:** Lassen Co.: small creek west of Highway 395 about 1 mile south of Lassen-Modoc county line, *Norris 84742*; Modoc Co.: Forest Road 46 at Boles Creek southeast of Clear Lake, Modoc National Forest, *Norris 79167a*; Shasta Co.: Cassel-Fall River Road about 2 miles south of Fall River Mills, *Norris 84701*; Tehama Co.: Highway 36 northeast of Red Bluff about 2 miles west of Dales, *Norris 56021*.

***Orthotrichum flowersii* Vitt** [Orthotrichaceae]

**Literature:** Galloway 1978; Harpel 1980a; Harthill et al. 1979.

**Illustrations:** Vitt 1971, 1973.

**Geographic subdivisions:** DMoj, SN, SNE, SW.

**Selected specimens:** Kern Co.: Black Gulch near Lake Isabella, Sequoia National Forest, *Norris & Piippo 82204*; Los Angeles Co.: Black Jack Campground at base of Orizaba Mountain, Santa Catalina Island, *Shevock & Thorne 4073*; Riverside Co.: USFS Guard Station, San Jacinto Mountains, San Bernardino National Forest, *Harpel 994* (pers. herb.); San Bernardino Co.: Paris Hill City Park, City of San Bernardino, *Harpel 658* (pers. herb.); San Diego Co.: Highway 94 at junction to Outdoor World Campground about 3 miles east of La Pasta Road, *Norris 77797*; Tulare Co.: South Creek just above South Creek Falls off of County Road M-99 north of Kernville, Sequoia National Forest, *Norris 87078* and South Fork Kaweah River near Clough Cave, Sequoia National Park, *Norris & Shevock 92730*.

***Orthotrichum hallii* Sullivant & Lesquereux in Sullivant** [Orthotrichaceae]

**Literature:** Stark and Whittemore 1992.

**Illustrations:** Flowers 1973; Lawton 1971; Sharp et al. 1994; Vitt 1973.

**Geographic subdivisions:** CaR, DMoj, NW, SN, SNE, SW.

**Selected specimens:** Kern Co.: Scodie Mountains northeast of Pinyon Peak about 1 mile west of Walker Pass off of Highway 178, *Norris 87127*;



Lake Co.: near Round Mountain, Knoxville BLM Recreation Area, *Toren & Dearing* 7058 (CAS); San Bernardino Co.: Curtis Canyon, Clark Mountain Wilderness, Mojave National Preserve, Mojave Desert, *Shevock, Spence, Glazer, & Laeger* 23668; Shasta Co.: Cassel-Fall River Road about 2 miles south of Fall River Mills, *Norris* 84724; Trinity Co.: Bridge Gulch at Natural Bridge, Shasta-Trinity National Forest, *Norris* 67734; Tulare Co.: trail to Crystal Cave near Cascade Creek, Sequoia National Park, *Shevock & Tseng* 15768; Ventura Co.: Howard Creek Trail about 1 mile east of Highway 33, Los Padres National Forest, *Norris* 55512.

**\**Orthotrichum holzingeri* Renauld & Cardot in Holzinger** [Orthotrichaceae]

**Illustrations:** Lawton 1971; Vitt 1973, 1991.

**Geographic subdivisions:** MP, SN.

**Selected specimens:** Modoc Co.: Modoc National Forest, Highway 139 at Biles Road about 13 miles northwest of Canby, *Norris* 70467 and Forest Road 46 at Boles Creek southeast of Clear Lake, Modoc National Forest, *Norris* 79166 & 79167b; Tuolumne Co.: Middle Fork Tuolumne River at Middle Fork Campground, *Norris & Shevock* 103989.

***Orthotrichum laevigatum* J. E. Zetterstedt** [Orthotrichaceae]

**Literature:** Flowers 1973; Harpel 1980a; Harthill et al. 1979; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Long 1978; McGrew 1976; Mishler 1978; Showers 1982; Sigal 1975; Spjut 1971; Toren 1977. As *Orthotrichum kingianum* Lesquereux 1868; Lesquereux and James 1884; Watson 1880. As *Orthotrichum roellii* Koch 1950a.

**Illustrations:** Flowers 1973; Ignatov and Lewinsky-Haapasaari 1994; Lawton 1971; Vitt 1973.

**Geographic subdivisions:** CaR, MP, NW, SN, SNE, SW.

**Selected specimens:** Colusa Co.: Summit Springs south of Snow Mountain, Mendocino National Forest, *Norris* 76126; Inyo Co.: about 3 miles south of Schulman Grove, White Mountains, Inyo National Forest, *Norris* 46857; Lake Co.: Cobb Mountain Summit, *Toren & Dearing* 7387 (CAS); Lassen Co.: Amedee Canyon north of Honey Lake, *Norris* 81028; San Bernardino Co.: west end Bluff Lake, San Geronio Wilderness, San Bernardino National Forest, *Harpel* 599 (pers. herb.); Shasta Co.: Pit River about 2 miles below powerhouse #2, Shasta-Trinity National Forest, *Norris* 82591; Tulare Co.: Trail 34E08 southeast of Manter Meadow near Black Mountain, Domeland Wilderness, Sequoia National Forest, *Shevock* 10827.

***Orthotrichum lyellii* W. J. Hooker & Taylor** [Orthotrichaceae]

**Literature:** Bourell 1981; Bradshaw 1926; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Kingman 1912; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquer-

aux 1868; McCleary 1972; Millspaugh and Nuttall 1923; Mishler 1978; Sayre 1940; Shevock and Toren 2001; Showers 1982; Sigal 1975; Smith 1970; Spjut 1971; Steere 1954; Steere et al. 1954; Sullivant 1856; Thomson and Ketchledge 1958; Toren 1977; Watson 1880; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Orthotrichum lyellii* var. *howei* Cardot and Thériot 1900.

**Illustrations:** Lawton 1971; Sharp et al. 1994; Smith 1978; Vitt 1973.

**Geographic subdivisions:** CaR, CW, DMoj, NW, SN, SW.

**Selected specimens:** Contra Costa Co.: Mt. Diablo, *Brewer* 844 (UC); Kern Co.: Cedar Creek along Highway 155, west of Greenhorn Summit, Greenhorn Mountains, Sequoia National Forest, *Shevock* 10790; Lake Co.: Highway 53 about 1 mile south of Highway 20, *Norris* 47692; San Diego Co.: Heise County Park south of Julian, *Norris* 50739; Santa Cruz Co.: Laurel Road at Highway 17, *Kellman* 2712 (CAS); Siskiyou Co.: Duck Lake Trail near Parrott's Mill Road, Klamath National Forest, *Norris* 22805.

***Orthotrichum macounii* Austin** [Orthotrichaceae]

**Literature:** Spjut 1971.

**Illustrations:** Flowers 1973.

**Geographic subdivisions:** NW.

**Selected specimens:** Siskiyou Co.: above Big Boulder Lake west of Carrville, Klamath National Forest, *Norris & Streimann* 74797.

***Orthotrichum obtusifolium* Bridel** [Orthotrichaceae]

**Literature:** Kellman 2003; Toren 1977. As *Stroemia obtusifolia* Koch 1951b.

**Illustrations:** Ignatov and Ignatova 2003; Ignatov and Lewinsky-Haapasaari 1994; Ireland 1982; Lawton 1971; Smith 1978; Vitt 1973.

**Geographic subdivisions:** CaR, CW, MP, NW, SN.

**Selected specimens:** Fresno Co.: Redwood Creek at Windy Gulch Grove, Sequoia National Forest, *Norris, Shevock, & Barahona* 87949; Lake Co.: Crockett Peak, Snow Mountain Wilderness, Mendocino National Forest, *Toren & Dearing* 5346a (CAS); Modoc Co.: Cottonwood Flat Campground, Modoc National Forest, *Norris* 68517 & 68522; Santa Cruz Co.: Gray Whale Ranch, Wilder Ranch State Park, *Kellman* 963 (CAS); Shasta Co.: Casberry Flat about 1 mile west of Hatchett Mountain Summit, *Norris* 68588; Siskiyou Co.: Salmon River about 1 mile south of Big Flat, *Norris* 9201 (determined by Vitt); Tehama Co.: Seven Mile Creek along Highway 36 at milepost 48 east of Red Bluff, *Norris* 21265; Tulare Co.: Deep Creek, Little Kern River, Golden Trout Wilderness, Sequoia National Forest, *Norris* 67914.

**\**Orthotrichum pallens* Bruch ex Bridel** [Orthotrichaceae]

**Illustrations:** Flowers 1973; Ignatov and Ignatova 2003; Ignatov and Lewinsky-Haapasaari 1994; Lawton 1971; Sharp et al. 1994; Vitt 1973.

**Geographic subdivisions:** SNE.

**Selected specimens:** Mono Co.: above Robinson Lake on trail to Barney Creek and Twin Lakes, Toiyabe National Forest, *Norris* 99646.

***Orthotrichum papillosum* Hampe**

[Orthotrichaceae]

**Literature:** Kellman 2003; Koch 1950a. As *Orthotrichum lyellii* var. *papillosum* Jamieson 1969; Koch 1958; Lesquereux and James 1884.

**Illustrations:** As *O. lyellii* Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** El Dorado Co.: Highway 193 at Garden Valley Road, *Norris* & *Piippo* 82304; Humboldt Co.: Forest Road 10N01 at Mill Creek, Six Rivers National Forest, *Norris* 70573; Lake Co.: Forest Road M-3 at Low Gap, Mendocino National Forest, *Shevock*, *Bourell*, & *Toren* 15858; Mendocino Co.: Pygmy Forest near Albion, *Shevock* & *Allen* 21921; Monterey Co.: Pfeiffer-Big Sur State Park at campground, *Norris* 75903; Santa Cruz Co.: Quail Hollow Ranch County Park, *Kellman* 131 (UC); Shasta Co.: Indian Springs, Castle Crags State Park, *Norris* 103043; Siskiyou Co.: McCloud River about 5 miles east of McCloud, *Norris* & *Hillyard* 103896; Sonoma Co.: Bodega Marine Laboratory, *Norris* 103461; Tulare Co.: South Fork Tule River near Camp Nelson, *Norris*, *Shevock*, & *Barahona* 87669.

***Orthotrichum pellucidum* Lindberg**

[Orthotrichaceae]

**Literature:** Howe 1896.

**Illustrations:** Ignatov and Lewinsky-Haapasaari 1994; Vitt 1973. As *Orthotrichum cupulatum* var. *jamesianum* Lawton 1971. As *Orthotrichum jamesianum* Flowers 1973; McGrew 1976.

**Geographic subdivisions:** CaR, MP, NW, SN.

**Selected specimens:** Kern Co.: Erskine Creek Canyon about halfway between canyon entrance and Liebel Ranch, Piute Mountains, *Shevock* 13363; Modoc Co.: Crowder Flat about 2 miles south of Oregon border, *Norris* 79151; Tehama Co.: Anthony Peak, Mendocino National Forest, *Norris* 55026 and Tomhead Gulch, Shasta-Trinity National Forest, *Norris* 56912; Tulare Co.: Coy Flat Road near bridge crossing of Middle Fork Tule River, Camp Nelson, Sequoia National Forest, *Norris*, *Shevock*, & *Barahona* 87688.

**\**Orthotrichum praemorsum* Venturi**

[Orthotrichaceae]

**Illustrations:** Lawton 1971; Vitt 1973.

**Geographic subdivisions:** SNE.

**Selected specimens:** Mono Co.: Highway 89 near junction with Highway 395, *Shevock* & *Glazer* 21800.

***Orthotrichum pulchellum* Brunton in J. E.**

**Smith** [Orthotrichaceae]

**Literature:** Lesquereux 1868; Watson 1880.

**Illustrations:** Lawton 1971; Smith 1978; Vitt 1973.

**Geographic subdivisions:** NW.

**Selected specimens:** Del Norte Co.: near mouth of Damnation Creek, Del Norte Redwoods State Park, *Norris* 10974 & 48230; Humboldt Co.: near Abalone Point, Patricks Point State Park, *Norris* 23920 and College Cove about 0.5 mile north of Trinidad, *Norris* 47742.

***Orthotrichum pumilum* Swartz** [Orthotrichaceae]

**Literature:** Harpel 1980a, 1980b.

**Illustrations:** Ignatov and Ignatova 2003; Ignatov and Lewinsky-Haapasaari 1994; Lawton 1971; Vitt 1973.

**Geographic subdivisions:** CaR, NW, SN, SW.

**Selected specimens:** Lake Co.: Highway 53 about 1 mile south of Highway 20, *Norris* 47673 and Upper Lake Ranger Station, Mendocino National Forest, *Toren* 7436a (CAS) [determined by Vitt]; Orange Co.: Harding Canyon about 0.5 mile north of Mojeska Canyon and Tucker Bird Sanctuary, Cleveland National Forest, *Shevock* 4003; San Bernardino Co.: Waterman Canyon, San Bernardino National Forest, *Harpel* 2398 (pers. herb.); Santa Barbara Co.: about 1 mile south of Bates Canyon Campground, *Norris* 55381; Shasta Co.: County Road A16 about 14 miles east of Platina, *Norris* 23764; Tulare Co.: Highway 190 at Moorehouse Springs Creek, Sequoia National Forest, *Norris* 50924 and between Posey to White River, *Kellman* 1453 (CAS).

***Orthotrichum pylaisii* Bridel** [Orthotrichaceae]

**Literature:** Harthill et al. 1979; McGrew 1976; Showers 1982. As *Orthotrichum microblepharum* Spjut 1971.

**Illustrations:** Vitt 1973.

**Geographic subdivisions:** CaR, MP, NW, SN.

**Selected specimens:** Alpine Co.: Red Lake Creek, Toiyabe National Forest, *Norris* 88197; Fresno Co.: Spanish Mountain Jeep Road, Sierra National Forest, *Shevock* & *York* 12429; Humboldt Co.: Grouse Mountain Road about 3 miles northeast of Horse Mountain Road, Six Rivers National Forest, *Norris* 45777; Modoc Co.: Big Sage Reservoir north of Alturas, *Norris* 68497; Siskiyou Co.: McCloud River about 5 miles east of McCloud, *Norris* & *Hillyard* 103897; Trinity Co.: below Packer's Peak, *Norris* 8982.

***Orthotrichum rivulare* Turner** [Orthotrichaceae]

**Literature:** Bourell 1981; Holmberg 1969; Howe 1896; Kellman 2003; Koch 1950a, 1951e; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Shevock and Toren 2001; Spjut 1971; Steere et al. 1954; Thomson and Ketchledge 1958; Watson 1880.

**Illustrations:** Lawton 1971; Lewinsky-Haapasaari and Norris 1998a; Smith 1978; Vitt 1973.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Del Norte Co.: Smith River at Highway 199 about 9 miles east of junction with Highway 101, Six Rivers National Forest, *Norris*



85007; Fresno Co.: Big Creek at Blue Canyon, Sierra National Forest, *Norris, Shevock, & Barahona* 87438; Mendocino Co.: Greenwood Ridge Road at Navarro River near entrance to Hendy Redwoods State Park, *Norris* 53107; Santa Cruz Co.: San Lorenzo River, Henry Cowell Redwoods State Park, *Kellman* 447 (CAS); Shasta Co.: Highway 299 about 1 mile north of Mineral School at intersection of road to Oak Run, *Norris* 68636; Trinity Co.: Ditch Gulch below Highway 3 about 1 mile north of Highway 36, Shasta-Trinity National Forest, *Norris* 68686; Tulare Co.: off of General's Highway opposite canyon from Inspiration Point, Sequoia National Park, *Shevock, Whitmarsh, & Johnson* 17154.

***Orthotrichum rupestre* Schleicher ex Schwägrichen** [Orthotrichaceae]

**Literature:** Bourell 1981; Cooke 1941; Harpel 1980a; Harthill et al. 1979; Kellman 2003; Kingman 1912; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Long 1978; McGrew 1976; Mishler 1978; Moxley 1928; Showers 1982; Sigal 1975; Spjut 1971; Steere et al. 1954; Strid 1974; Toren 1977; Watson 1880; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Orthotrichum sturmii* Lesquereux 1868; Lesquereux and James 1884; Watson 1880.

**Illustrations:** Flowers 1973; Ignatov and Ignatova 2003; Ignatov and Lewinsky-Haapasaari 1994; Lawton 1971; Lewinsky 1987, 1993; Sharp et al. 1994; Smith 1978; Vitt 1973.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SNE, SW.

**Selected specimens:** Fresno Co.: Mist Falls trail near junction with Bubbs Creeek, Kings Canyon National Park, *Shevock & York* 14478; Humboldt Co.: Forest Road 7K100 at junction of road to Horse Mountain Ski Lift, Six Rivers National Forest, *Norris* 70665; Lake Co.: The Openings above Cedar Creek, Mendocino National Forest, *Toren & Shevock* 8093 (CAS); Modoc Co.: west side Goose Lake about 4 miles south of Oregon border, *Norris* 23656; Orange Co.: Upper Trabuco Canyon, Santa Ana Mountains, Cleveland National Forest, *Shevock* 3991; Santa Clara Co.: Mt. Hamilton about 1 mile below summit, *Koch* 1421 (UC).

***Orthotrichum shevockii* Lewinsky-Haapasaari & Norris** [Orthotrichaceae]

**Literature:** Lewinsky-Haapasaari and Norris 1998b.

**Illustrations:** Lewinsky-Haapasaari and Norris 1998b.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Kern Co.: Highway 178 near Chimney Peak Road, base of Scodie Mountains, *Shevock & Tan* 13048 and *Shevock* 17093; Highway 178 west of Canebrake Creek, Scodie Mountains, *Norris* 87128, Pacific Crest Trail, Kiavah Wilderness, Scodie Mountains, Sequoia National

Forest, *Shevock & York* 13398, 13404; Mono Co.: Highway 89 about 3 miles west of junction with Highway 395, Toiyabe National Forest, *Norris* 76506 and along Slinkard Creek off of Highway 89 near junction with Highway 395, *Shevock & Glazer* 21802 and Highway 120, Benton Hills about 2 miles west of Benton, *Shevock & Glazer* 22289.

***Orthotrichum speciosum* Nees in J. W. Sturm** [Orthotrichaceae]

**Literature:** Harthill et al. 1979; Koch 1950a; Lawton 1971; Lesquereux 1868; McCleary 1972; McGrew 1976; Sayre 1940; Watson 1880; Yurky 1990.

**Illustrations:** Ignatov and Ignatova 2003; Ignatov and Lewinsky-Haapasaari 1994; Ireland 1982; Lawton 1971; Vitt 1973; Vitt and Darigo 1997.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Del Norte Co.: Doctor Rock, Six Rivers National Forest, *Norris* 57683; El Dorado Co.: South Fork American River at Carpenter Creek, Eldorado National Forest, *Norris* 58427; Marin Co.: Inverness Ridge Trail near Limatour Road, Point Reyes National Seashore, *Yurky* 337 (SFSU); Nevada Co.: Red Mountain on trail from Indian Springs, Tahoe National Forest, *Norris* 102615; Shasta Co.: Soda Creek Road about 3 miles northeast of Interstate 5 near Dunsmuir, Shasta-Trinity National Forest, *Norris* 84773; Siskiyou Co.: Six Mile Creek between Callahan and Cecilville, Klamath National Forest, *Norris* 22964; Tulare Co.: East Fork Kaweah River below Atwell Mills Campground, Sequoia National Park, *Norris* 46493.

***Orthotrichum spjutii* Norris & Vitt** [Orthotrichaceae]

**Literature:** Norris and Vitt 1993.

**Illustrations:** Norris and Vitt 1993.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Mono Co.: near outlet of Kenig Lake, east of Sonora Pass, Toiyabe National Forest, *Norris* 57207 & 57210; Tulare Co.: between BLM Long Valley Campground and South Fork Kern River, Domeland Wilderness, Sequoia National Forest, *Shevock* 15154, 15158, & 15161.

**\**Orthotrichum striatum* Hedwig** [Orthotrichaceae]

**Illustrations:** Ignatov and Lewinsky-Haapasaari 1994; Lawton 1971; Smith 1978; Vitt 1973.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Humboldt Co.: Grouse Mountain Road about 3.5 miles northeast of Horse Mountain Road, Six Rivers National Forest, *Norris* 24274 and about 1 mile south of Kneeland Airport, *Norris* 68261; Tulare Co.: East Fork Kaweah River below Atwell Mills Campground, Sequoia National Park, *Norris* 46479 and Buena Vista Trail, Grant Grove section, Kings Canyon National Park, *Shevock* 16647.

***Orthotrichum tenellum* Bruch ex Bridel**

[Orthotrichaceae]

**Literature:** Harpel 1980a; Harthill et al. 1979; Kellman 2003; Koch 1950a, 1951e; Koch and Ikenberry 1954; Long 1978; McCleary 1972; Mishler 1978; Shevock and Toren 2001; Steere 1954; Steere et al. 1954; Thomson and Ketchledge 1958; Toren 1977; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Orthotrichum coulteri* Lesquereux 1868. As *Orthotrichum cylindrocarpum* Bradshaw 1926; Kingman 1912; Lesquereux 1868; Lesquereux and James 1884; Millspaugh and Nuttall 1923; Sayre 1940; Steere 1954; Steere et al. 1954; Watson 1880. As *Orthotrichum tenellum* var. *coulteri* McCleary 1972.

**Illustrations:** Sharp et al. 1994; Smith 1978; Vitt 1973.

**Geographic subdivisions:** CW, NW, SN, SW.

**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris* 87190; Fresno Co.: Patterson Creek along Kings River, Sierra National Forest, *Norris* 50993; Lake Co.: north end of Bachelor Valley near Hell's Peak, *Toren* 975 (SFSU); Orange Co.: Trabuco Canyon about 3 miles east of O'Neill Park near Cleveland National Forest boundary, *Shevock* 3988; Placer Co.: Clover Valley Creek at Sierra College Road, *Norris* 81949; San Francisco Co.: Panhandle, Golden Gate Park, *Shevock* 18930; Santa Cruz Co.: San Lorenzo Park, City of Santa Cruz, *Kellman* 1832 (CAS); Sonoma Co.: South Ridge Trail above Lake Sonoma at Skaggs Spring Road, *Norris* 86911.

***Orthotrichum texanum* Sullivant & Lesquereux**

[Orthotrichaceae]

**Literature:** Flowers 1973; Koch 1950a; Lesquereux 1868; Lesquereux and James 1884; Steere et al. 1954. As *Orthotrichum texanum* var. *globosum* Lesquereux 1868; Lesquereux and James 1884; Steere et al. 1954; Watson 1880.

**Illustrations:** Flowers 1973.

**Geographic subdivisions:** CaR, NW.

**Selected specimens:** Shasta Co.: Shotgun Creek near North Fork Shotgun Creek south-southeast of Sims, Shasta-Trinity National Forest, *Norris & Hill-yard* 103890; Siskiyou Co.: Forest Road 46N65 about 2 miles north of Lake Mountain Lookout, Klamath National Forest, *Norris* 70923.

***Orthotrichum underwoodii* F. Lara, Garilleti & Mazimpaka** [Orthotrichaceae]

**Literature:** Garilleti et al. 2001.

**Illustrations:** Garilleti et al. 2001.

**Geographic subdivisions:** CW.

**Selected specimens:** Santa Clara Co.: Santa Clara Mountains, *Pringle s.n.* (NY) and Pajaro, *Underwood s.n.* (NY); Santa Cruz Co.: Felton, *Kellman* 1183 (CAS).

***Oxystegus tenuirostris* (W. J. Hooker & Taylor) A. J. E. Smith** [Pottiaceae]

**Literature:** As *Trichostomum tenuirostre* Lawton 1971.

**Illustrations:** Allen 2002; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1981; Sharp et al. 1994; Smith 1978; Zander 1993.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Madera Co.: Forest Highway 81 along Rock Creek near Rock Creek Bridge, Sierra National Forest, *Norris & Shevock* 100055; Siskiyou Co.: Klamath River at Crawford Creek, *Norris* 10483; Tulare Co.: Salmon Creek west of Rincon Trail, Kern Plateau, Sequoia National Forest, *Laeger* 1192 (CAS).

***Palustriella commutata* (Bridel) Ochya**

[Helodiaceae]

**Literature:** As *Hypnum commutatum* Lesquereux 1868; Watson 1880.

**Illustrations:** Hedenäs 1993a; Ireland 1982; Ochya 1989; Smith 1978. As *Cratoneuron commutatum* Flowers 1973; Lawton 1971. As *Cratoneuron commutatum* var. *falcatum* Lawton 1971. As *Cratoneuron falcatum* Flowers 1973.

**Notes:** The California material of *Palustriella* appears to be a complex array of ecological forms based on water chemistry and habitats.

**Geographic subdivisions:** CaR, MP, NW, SN, SNE.

**Selected specimens:** Inyo Co.: Robinson Lake south of Onion Valley, Inyo National Forest, *Norris* 46661 & 46664; Modoc Co.: South Fork Pine Creek, South Warner Wilderness, Modoc National Forest, *Harpel* 2312 (pers. herb.); Mono Co.: Lundy Lakes Trail along Mill Creek below Helen Lake, Inyo National Forest, *Norris* 78862; Siskiyou Co.: Jackson Creek along road between Callahan and Cecilville about 6 miles west of Callahan, Klamath National Forest, *Norris* 70504 and shore of Grass Lake along Highway 97 north of Weed, *Norris* 74482; Tulare Co.: Clover Creek off of General's Highway, Marble Fork Kaweah River, Sequoia National Park, *Shevock* 15632.

***Phascum cuspidatum* Hedwig** [Pottiaceae]

**Literature:** Brandege 1891; Crum and Anderson 1981; Harthill et al. 1979; Howe 1897; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Shevock and Toren 2001; Stark and Whittemore 1992; Steere et al. 1954; Toren 1977; Watson 1880. As *Tortula acaulon* Zander 1993.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978. As *Tortula acaulon* Ignatov and Ignatova 2003.

**Geographical subdivisions:** CaR, CW, DMoj, NW, SN, SW.

**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris* 87164; Contra Costa



Co.: Antioch Dunes National Wildlife Refuge, *Norris* 97052; Kern Co.: Highway 178, Kern River Canyon above first dam, Sequoia National Forest, *Norris* 80806; Lake Co.: Indian Valley Lake, *Norris* 67544; Orange Co.: Mesa Picnic Area, O'Neal Regional Park, Santa Ana Mountains, *Norris & Piippo* 82168; San Bernardino Co.: Mid-Hills Campground, Providence Mountains, Mojave National Preserve, *Norris* 81412; San Francisco Co.: Potrero Hill, *Toren* 7823 (CAS); Shasta Co.: Highway 299 at Oak Run Road, *Norris* 80343.

***Philonotis americana* (Dismier) Dismier**  
[Bartramiaceae]

**Literature:** Holmberg 1969; Koch 1950a, 1958; Koch and Ikenberry 1954; Spjut 1971. As *Philonotis fontana* var. *americana* Flowers 1973; Strid 1974.

**Illustrations:** Flowers 1973; Ireland 1982; Lawton 1971.

**Geographic subdivisions:** CaR, NW, SN, SNE, SW.

**Selected specimens:** Humboldt Co.: Highway 299 at Lord Ellis Summit, *Creasy s.n.* (UC); Lake Co.: Ericson Ridge, Mt. Sanhedrin, Mendocino National Forest, *Toren* 7151 (CAS); San Bernardino Co.: Wildhorse Creek near summit of Sugarloaf Mountain, San Bernardino National Forest, *Sanders* 15027 (UC); Siskiyou Co.: Mt. Eddy, Shasta-Trinity National Forest, *Norris* 9148; Tehama Co.: near Sulfur Works, Lassen Volcanic National Park, *Koch* 1945 (UC); Tulare Co.: General's Highway, 0.9 miles above Amphitheater Point, Sequoia National Park, *Shevock* 15221.

***Philonotis caespitosa* Juratzka** [Bartramiaceae]

**Literature:** As *Philonotis fontana* var. *caespitosa* Flowers 1973; Strid 1974.

**Illustrations:** Flowers 1973; Ignatov and Ignatova 2003; Lawton 1971. As *Philonotis fontana* var. *caespitosa* Crum and Anderson 1981.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Fresno Co.: Cedar Grove at Granite Creek, Kings Canyon National Park, *Shevock* 13765; Tornado Meadow, Sequoia National Forest, *Norris, Shevock, & Barahona* 87997; Mono Co.: Barney Lake, Toiyabe National Forest, *Norris* 67120.

**\**Philonotis calcarea* (Bruch & W. P. Schimper) W. P. Schimper** [Bartramiaceae]

**Illustrations:** Ignatov and Ignatova 2003; Smith 1978.

**Geographic subdivisions:** SNE.

**Selected specimens:** Mono Co.: Virginia Lakes Basin at Cooney Lake, *Janeway* 7659 (UC).

***Philonotis capillaris* Lindberg** [Bartramiaceae]

**Literature:** Bourell 1981; Crum and Anderson 1981; Dismier 1911; Holmberg 1969; Howe 1896; Jamieson 1969; Kellman 2003; Koch 1950a;

McGrew 1976; Shevock and Toren 2001; Spjut 1971; Toren 1977; Yurky 1990, 1995.

**Illustrations:** Allen 2002; Crum and Anderson 1981; Lawton 1971.

**Geographical subdivisions:** CaR, CW, NW, SN, SNE.

**Selected specimens:** Humboldt Co.: Redwood Creek near junction with Highway 299, *Norris* 47072 and Avenue of the Giants above Myers Flat, *Norris* 72095; Lake Co.: Old County Road, Blue Lakes, *Toren* 7430a (CAS); Marin Co.: Lake Lagunitas, *Eastwood* 104 (CAS); Mono Co.: Harvey Monroe Hall Research Natural Area, Inyo National Forest, *Norris* 48429; San Francisco Co.: Tank Hill, *Shevock* 18918; Santa Cruz Co.: China Grade, Big Basin Redwoods State Park, *Kellman* 1318 (CAS); Sonoma Co.: Wolf Creek Road about 4 miles east of Gualala River, *Norris* 86941; Trinity Co.: East Weaver Lake, *Norris* 9398.

***Philonotis fontana* (Hedwig) Bridel**  
[Bartramiaceae]

**Literature:** Bourell 1981; Cooke 1941; Coville 1893; Crum and Anderson 1981; Dismier 1911; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Long 1978; McGrew 1976; Showers 1982; Spjut 1971; Strid 1974; Toren 1977; Yurky 1990, 1995. As *Bartramia fontana* Lesquereux 1868; Watson 1880. As *Philonotis calcarea* forma *occidentalis* Koch 1950a.

**Illustrations:** Allen 2002; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Koponen et al. 1995; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SNE, SW.

**Selected specimens:** Fresno Co.: Forest Road 10S66 above Bear Creek, Sierra National Forest, *Shevock & Bourell* 14014; Humboldt Co.: shore of Snow Camp Lake, *Norris* 50381; Marin Co.: Olema, *Jepson* 66 (UC); Placer Co.: North Fork Campground near Emigrant Gap, Tahoe National Forest, *Norris* 88049; Riverside Co.: Dark Canyon, San Jacinto Mountains, San Bernardino National Forest, *Harpel* 79 (pers. herb.); Santa Cruz Co.: Slippery Rock Meadow, Big Basin Redwoods State Park, *Kellman* 698 (CAS).

**\**Philonotis marchica* (Hedwig) Bridel**  
[Bartramiaceae]

**Illustrations:** Ignatov and Ignatova 2003; Smith 1978.

**Geographic subdivisions:** CaR.

**Selected specimens:** Siskiyou Co.: along Ash Creek south of summit of Ash Creek Butte, High Cascade Range, *Janeway* 7633 (UC).

***Philonotis muehlenbergii* (Schwägrichen) Bridel**  
[Bartramiaceae]

**Literature:** Yurky 1990, 1995.

**Illustrations:** Crum and Anderson 1981.

**Geographic subdivisions:** CW, GV, SN, SNE.

**Selected specimens:** Fresno Co.: trail between Golden Lake and Mono Pass, Sierra National Forest, *Norris* 47026; Inyo Co.: John Muir Wilderness, Inyo National Forest, slopes above Chocolate Lake west of Big Pine, *Norris* 46927, vicinity of Heart Lake between Onion Valley and Kearsarge Pass, *Norris* 46798, and Robinson Lake, *Norris* 46647; Marin Co.: Olema Valley Trail, Point Reyes National Seashore, Yurky 534 (SFSU); Sutter Co.: Philip Road near junction with Feddymont Road northwest of Roseville, *Norris* 103779; Tulare Co.: slopes above Ranger Lakes toward Silliman Pass, Roaring River Fork of Kings River, Kings Canyon National Park, *Norris* 46582.

***Philonotis tomentella* Molendo in Lorentz**

[Bartramiaceae]

**Literature:** Dismier 1911. As *Philonotis fontana* var. *punila* Flowers 1973; Lawton 1971; Showers 1982.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Lawton 1971; Smith 1978.

**Geographic subdivisions:** NW, SN, SNE.

**Selected specimens:** Amador Co.: Devil's Lake Trail northeast of Bear River Reservoir, Eldorado National Forest, *Norris* 82680; Fresno Co.: Kearsarge Lakes, South Fork Kings River, Kings Canyon National Park, *Shevock* 14331; Lake Co.: Forest Road M-3 south of Sheetiron Mountain, Mendocino National Forest, *Shevock* 15870; Mono Co.: Harvey Monroe Hall Research Natural Area, Inyo National Forest, *Norris* 48424; Siskiyou Co.: Terrace and Upper Cliff Lakes, *Norris* 53004.

***Philonotis yezoana* Bescherelle & Cardot**

[Bartramiaceae]

**Literature:** Crum and Anderson 1981.

**Illustrations:** Czernyadjeva 1995.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Amador Co.: junction of Hidden Lake Trail and Horse Thief Spring Trail above Plasse Resort on south end of Silver Lake, Eldorado National Forest, *Norris* 82848; Humboldt Co.: Mountain View Road about 2 miles east of Kneeland, *Norris* 8612; Inyo Co.: slopes above Treasure Lake west of Big Pine, John Muir Wilderness, Inyo National Forest, *Norris* 46995; Mono Co.: Lundy Creek, Hoover Wilderness, Toiyabe National Forest, *Norris* & *Hillyard* 104152; Siskiyou Co.: near Big Duck Lake, Klamath National Forest, *Norris* 22899; Tuolumne Co.: Chewing Gum Lake on Burst Rock Trail, Emigrant Wilderness, Stanislaus National Forest, *Norris* 82985.

***Physcomitrella patens* (Hedwig) Bruch & W. P. Schimper** [Funariaceae]

**Literature:** Koch 1950a; Tan 1978.

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Smith 1978; Tan 1978.

**Geographic subdivisions:** CW.

**Selected specimens:** Alameda Co.: near reservoir/

pond, Mountain View Cemetery, Oakland, *Gardner s.n.* (UC) [determined by Koch].

***Physcomitrella readeri* (C. Müller Hal.) Stone & G. A. M. Scott** [Funariaceae]

**Literature:** As *Physcomitrella californica* Crum and Anderson 1955. As *Physcomitrella patens* var. *californica* and *P. patens* var. *readeri* Tan 1979.

**Illustrations:** As *Physcomitrella californica* Crum and Anderson 1955.

**Geographic subdivisions:** CW, GV.

**Selected specimens:** Alameda Co.: Lake Del Valle, *Erter* 17546 (CAS, MO, UC); Solano Co.: mudflats on Lake Chabot, *Koch* 1320 (MO, UC).

***Physcomitrium californicum* E. Britton**

[Funariaceae]

**Literature:** Flowers 1973; Howe 1897; Smith 1970; Toren 1977; Yurky 1990. As *Physcomitrium megalocarpum* var. *californicum* Koch 1950a; Lawton 1971.

**Illustrations:** Flowers 1973; Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW, SN, SW.

**Selected specimens:** El Dorado Co.: Highway 49, 2.3 miles north of crossroad to Georgetown, *Tavares* 669 (UC); Humboldt Co.: Blue Slide, Van Duzen River, *Tracy* 9297 (UC); Marin Co.: Lake Lagunitas, *Eastwood* 105 (CAS); Mendocino Co.: Highway 101 at Cummings turnoff at milepost 84.91, *Norris* 21601; Riverside Co.: Mesa de Colorado, Santa Rosa Plateau, southern Santa Ana Mountains, *Shevock* 4275; San Bernardino Co.: Blue Lake, San Bernardino Mountains, *Munz* 10537 (CAS) [determined by MacFadden]; Siskiyou Co.: Highway 96 about 1 mile west of Seiad Valley, Klamath National Forest, *Norris* 58283; Tehama Co.: about 2 miles west of Dales, *Norris* 56018.

***Physcomitrium collenchymatum* Gier**

[Funariaceae]

**Literature:** Steen 1986.

**Illustrations:** Crum and Anderson 1964, 1981; Gier 1955; Ireland 1982.

**Geographic subdivisions:** GV, SN.

**Selected specimens:** Calaveras Co.: above Comanche Reservoir near Burson, *Steen* 840326–8 (CINC, DUKE, UC) [determined by Crum; Snider]; Tulare Co.: north end of Lake Kaweah near Three Rivers, *Shevock* & *York* 16903 and *Shevock* 17266.

**\**Physcomitrium hookeri* Hampe** [Funariaceae]

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Lawton 1971.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Del Norte Co.: French Hill Road about 1 mile above Highway 199 southwest of Gasquet, Six Rivers National Forest, *Norris* 85031; Fresno Co.: Red Mountain east of Humphreys Station, *Shevock* & *York* 13261.



***Physcomitrium pyriforme* (Hedwig) Hampe**  
[Funariaceae]

**Literature:** Lesquereux 1868; Watson 1880; Yurky 1995. As *Physcomitrium megalocarpum* Koch 1951e; Koch and Ikenberry 1954. As *Physcomitrium turbinatum* Bradshaw 1926; Howe 1897.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Fresno Co.: Cripe Road near junction with Peterson Mill Road, Sierra National Forest, *Shevock & York 14937*; Lake Co.: Big Valley along Soda Bay Road, *Toren 7857* (CAS); Marin Co.: Ridgecrest Boulevard, Mt. Tamalpais, *Koch 2285* (UC); Placer Co.: muddy bank, Dutch Flat, *MacFadden 9411* (MO); San Mateo Co.: Burleigh H. Murray Ranch State Park, *Whittemore 5407* (CAS); Shasta Co.: Oak Run east of Redding, *Nutting s.n.* (UC); Trinity Co.: near Hyampom, Shasta-Trinity National Forest, *Howe 1104* (UC); Tulare Co.: trail to Mosquito Lakes before junction to Eagle Lakes, Mineral King, Sequoia National Park, *Shevock & O'Brien 15919*.

***Plagiomnium cuspidatum* (Hedwig) T. Koponen**  
[Mniaceae]

**Literature:** Kellman 2003. As *Mnium cuspidatum* Flowers 1973; Koch 1950a; Wyatt and Odrzykaski 1998.

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Placer Co.: Kings Beach near shore of Lake Tahoe, Lake Tahoe Basin Management Unit, *Matson 367* (UC); Shasta Co.: Highway 299 about 24 miles east of Redding, *Norris 21596*; Siskiyou Co.: near Ducks Lake Trail near Parrots Mill Road, *Norris 22829*; Tulare Co.: Redwood Canyon, Redwood Mountain Grove, Kings Canyon National Park, *Dennis s.n.* (CAS).

***\*Plagiomnium ellipticum* (Bridel) T. Koponen**  
[Mniaceae]

**Literature:** Misapplied as *Mnium affine* Cooke 1941; Holmberg 1969; Koch 1950a; Lesquereux 1868. As *Mnium rugicum* Showers 1982. As *Plagiomnium rugicum* Lawton 1971.

**Illustrations:** Ignatov and Ignatova 2003.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Fresno Co.: Deer Creek adjacent to Highway 180 and South Fork Kings River, Sequoia National Forest, *Shevock 12452*; Humboldt Co.: Azalea Reserve State Park, *Farr 34 & 53* (UC); Nevada Co.: Sagehen Creek about 3 miles east of UC Biological Station, Tahoe National Forest, *Norris 99446*; Mono Co.: near Green Lake, Hoover Wilderness, Toiyabe National Forest, *Norris 57247*; Siskiyou Co.: Klamath National Forest,

near Sutcliffe Creek about 13 miles northwest of Happy Camp, *Norris 83305, 83310 & 83322*, and trail to Bear Lake along Bear Creek, *Norris 83452*; Tehama Co.: Beegum Creek off of Forest Road 35 about 1.5 miles west of Rat Trap Gap, Shasta-Trinity National Forest, *Norris 56954 & 56990*; Tulare Co.: above Dorst Creek Campground, Sequoia National Park, *Shevock & Dennis 14083*.

***Plagiomnium insigne* (Mitten) T. Koponen**  
[Mniaceae]

**Literature:** Koponen 1971; Lawton 1971; Spjut 1971; Yurky 1995. As *Mnium insigne* Bourell 1981; Holmberg 1969; Jamieson 1969; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lesquereux 1868; Smith 1970.

**Illustrations:** Koponen 1971; Lawton 1971.

**Geographic subdivisions:** CW, NW, SN.

**Selected specimens:** Del Norte Co.: Jedediah Smith Redwoods State Park, *Norris 85080*; Humboldt Co.: near Fish Lake above Weitchpec, Six Rivers National Forest, *Norris 22225*; Lake Co.: south of Summit Lake, Mendocino National Forest, *Toren & Dearing 7210* (CAS) [determined by Wyatt]; Siskiyou Co.: road to Jackson Lake about 3.5 miles west of Callahan toward Cecilville, Klamath National Forest, *Norris 22924*; Tehama Co.: fork of Beegum Creek about 1.5 miles west of Rat Trap Gap, Shasta-Trinity National Forest, *Norris 56987*; Trinity Co.: Big Creek east of China Peak, *Norris 76829* and East Fork Road at Rich Gulch north of Helena, Shasta-Trinity National Forest, *Norris 18945*; Tulare Co.: Deer Creek area south of Lion Ridge, Greenhorn Mountains, Sequoia National Forest, *Shevock 10087*.

***Plagiomnium medium* (Bruch & W. P. Schimper) T. Koponen** [Mniaceae]

**Literature:** Koponen 1971; Lawton 1971; Spjut 1971. As *Mnium medium* Crum and Anderson 1981; Flowers 1973; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lesquereux 1868; Showers 1982.

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Koponen 1971; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, MP, NW, SN.

**Selected specimens:** Humboldt Co.: Tish-Tang-a-Tang Creek near Grogans Hole, Six Rivers National Forest, *Norris 47844*; Kern Co.: north of Highway 155, 1 mile north of Tiger Flat Campground, Greenhorn Mountains, Sequoia National Forest, *Shevock 10623*; Modoc Co.: Deep Creek about 2 miles west of Cedarville-Eagleville Road, *Norris 18732*; Placer Co.: Big Tree Grove, Tahoe National Forest, *Koch 3164* (UC); Siskiyou Co.: near Cook and Green Pass about 1 mile west of White Mountain, Klamath National Forest, *Norris 50183*; Tuolumne Co.: Frazier Flat Campground along Tuolumne River off Highway 108, Stanislaus National Forest, *Norris 57123*.

***Plagiomnium rostratum* (Schrader) T. Koponen**  
[Mniaceae]

**Literature:** Lawton 1971. As *Mnium rostratum* Harthill et al. 1979; Strid 1974. As *Mnium longirostratum* Crum and Anderson 1981; Koch 1950a.

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Fresno Co.: Zumwalt Meadow, Cedar Grove, Kings Canyon National Park, *Shevock* 13778; Humboldt Co.: Oregon Creek north of Trinity Guard Station, *Norris* 50146 and South Fork of Tish-Tang-a-Tang Creek east of Hoopa, Hoopa Valley Indian Reservation, *Norris* & *Whitemore* 52374; Siskiyou Co.: trail along Bear Creek, *Norris* 83452 and near Bear Lake, Klamath National Forest, *Norris* 24213; Trinity Co.: Coffee Creek at trail to Boulder Creek Lakes, Shasta-Trinity National Forest, *Norris* 57446.

***Plagiomnium venustum* (Mitten) T. Koponen**  
[Mniaceae]

**Literature:** Kellman 2003; Lawton 1971; Spjut 1971; Yurky 1990. As *Mnium venustum* Bourell 1981; Harpel 1980a; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lesquereux 1868; Toren 1977; Watson 1880.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Contra Costa Co.: Donner Canyon, Mt. Diablo State Park, *Shevock* & *Erter* 20329; Del Norte Co.: Forest Road 4803, Siskiyou National Forest, *Norris* 70907; El Dorado Co.: Bear Creek Picnic Area south-southeast of Georgetown, Eldorado National Forest, *Norris* & *Piippo* 82339; Lake Co.: Ericson Ridge, Mt. Sanhedrin, Mendocino National Forest, *Toren* 5113 (CAS); Santa Cruz Co.: Blue Cliff, South Fork Fall Creek, *Kellman* 557 (CAS); Shasta Co.: Forest Road 39N07 along Soda Creek about 6 miles northeast of Interstate 5 south of Dunsmuir, *Norris* & *Hillyard* 103803; Trinity Co.: Swede Creek Road about 1 mile north of intersection with road to Ironside Mountain Lookout, Shasta-Trinity National Forest, *Norris* 70711; Tulare Co.: trail to Crystal Cave near Cascade Creek, Sequoia National Park, *Shevock* & *Tseng* 15765.

***Plagiothecium cavifolium* (Bridel) Iwatsuki**  
[Plagiotheciaceae]

**Literature:** McGrew 1976.

**Illustrations:** Ignatov et al. 1996; Ireland 1982, 1985; Iwatsuki 1970.

**Geographic subdivisions:** NW, SN, SNE.

**Selected specimens:** Del Norte Co.: Whiskey Lake, Siskiyou National Forest, *Norris* 57731; Humboldt Co.: Prairie Creek Redwoods State Park, *Norris* 70412; Mono Co.: Stanford Meadows, Harvey Monroe Hall Research Natural Area, Inyo National Forest, *Norris* 48397 and Barney Lake, Toiyabe National Forest, *Norris* 67123; Siskiyou Co.: Long Gulch Lake above Callahan, Klamath National Forest, *Norris* 57501 and Scott Camp Creek Basin, *Norris* 53079.

**Plagiothecium denticulatum** (Hedwig) Bruch & W. P. Schimper [Plagiotheciaceae]

**Literature:** Holmberg 1969; Ireland 1982, 1986; Jamieson 1969; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; McGrew 1976; Showers 1982; Spjut 1971; Yurky 1995. As *Hypnum denticulatum* Lesquereux 1868; Watson 1880.

**Illustrations:** Abramov and Volkova 1998; Flowers 1973; Ignatov et al. 1996; Ireland 1982, 1986; Iwatsuki 1970; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Del Norte Co.: Damnation Creek Trail, Del Norte Redwoods State Park, *Norris* 10977; Fresno Co.: Forest Road 10S66 above Bear Creek, Sierra National Forest, *Shevock* & *Bourell* 13997; Inyo Co.: above George Lake, Inyo National Forest, *Norris* 71467; San Mateo Co.: Pilarcitos Canyon below Lake Pilarcitos, *Steere* s.n. (UC); Siskiyou Co.: Upper Cliff Lakes, *Norris* 53033 and Big Boulder Lake west of Carrville, Shasta-Trinity National Forest, *Norris* & *Streimann* 74802; Tehama Co.: North Yolla Bolly Mountain, Shasta-Trinity National Forest, *Norris* 57057; Tulare Co.: trail from Panther Gap to Emerald Lake, Sequoia National Park, *Norris* 67837.

***Plagiothecium laetum* Bruch & W. P. Schimper**  
[Plagiotheciaceae]

**Literature:** Bourell 1981; Ireland 1982, 1986; Kellman 2003; Lawton 1971; McGrew 1976; Shevock and Toren 2001; Smith 1970; Spjut 1971.

**Illustrations:** Ignatov et al. 1996; Ireland 1982, 1986; Lawton 1971.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Del Norte Co.: Damnation Creek Trail, Del Norte Redwoods State Park, *Norris* 46226; Humboldt Co.: Emerald Creek at junction with Redwood Creek, Redwood National Park, *Norris* 45835; Lake Co.: Bucknell Creek north of Garrett Mountain, Mendocino National Forest, *Toren* & *Dearing* 7414 (CAS); Mendocino Co.: along County Road 409 about 1 mile east of Highway 1 south of Fort Bragg, *Norris* 11691; San Francisco Co.: Golden Gate Park, *Shevock* 18760; Santa Cruz Co.: south of Santa Cruz, Forest of Nisene Marks State Park, *Norris* 55624.

***Plagiothecium piliferum* (Swartz ex C. J. Hartman) Bruch & W. P. Schimper**  
[Plagiotheciaceae]

**Literature:** Ireland 1986; Spjut 1971.

**Illustrations:** Ireland 1985; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, NW.

**Selected specimens:** Del Norte Co.: South Siskiyou Fork below Prescott Cabin, *Norris* 47920; Humboldt Co.: near French Camp, *Norris* 24311



and Forest Road 10N02 at head of Mill Creek, *Norris* 70581; Shasta Co.: Soda Creek Road, 3 miles northeast of Interstate 5 near Dunsmuir, *Norris* 84785; Siskiyou Co.: near Sutcliffe Falls about 14 miles northwest of Happy Camp, Klamath National Forest, *Norris* 83319.

***Platydictya jungermannioides* (Bridel) H. Crum**  
[Hypnaceae]

**Literature:** Kellman 2003; Lawton 1971; Showers 1982.

**Illustrations:** Flowers 1973; Ignatov et al. 1996; Ireland 1982; Lawton 1971; Ochyra 1998a; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SN, SNE.

**Selected specimens:** Fresno Co.: Redwood Creek, Windy Gulch Redwood Grove, Sequoia National Forest, *Norris, Shevock, & York* 87961 and Dinkey Lakes Trailhead, Sierra National Forest, *York* 1128 (CAS, UC); Inyo Co.: Little Lakes Creek near Long Lake, *Norris* 79013; Mono Co.: Lundy Lakes Trail, Inyo National Forest, *Norris* 78902; Santa Cruz Co.: Wilder Ranch State Park, *Kellman* 817 (CAS) and Santa Cruz City, *Kellman* 1093 (CAS); Shasta Co.: Squaw Valley Creek southwest of McCloud, Shasta-Trinity National Forest, *Norris & Hillyard* 104294; Siskiyou Co.: trail from Big Flat to Yellow Rose Mine, *Norris* 9124 and Salmon River near Big Flat, *Norris* 9168, Jaynes Creek northwest of Klamath River, *Norris* 48702; Tulare Co.: Kaweah River near Atwell Mills Campground west of Mineral King, Sequoia National Park, *Norris* 46451 & 46480 and Squirrel Creek off of County Road 372 about 1 mile below Oriole Lake, *Shevock* 17646.

***Platyhypnidium riparioides* (Hedwig) Dixon**  
[Brachytheciaceae]

**Literature:** Kellman 2003; Koch 1950a. As *Eurhynchium riparioides* Harthill et al. 1979; Ireland 1982; Jamieson 1969; Lawton 1971; McGrew 1976. As *Hypnum rusciforme* Watson 1880. As *Rhynchostegium rusciforme* Howe 1897; Lesquereux 1868.

**Illustrations:** Ignatov 1998; Ireland 1982; Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW.

**Selected specimens:** Butte Co.: Martin Creek near Brush Creek about 10 miles east of Oroville, *Dillingham* 804 (UC); Del Norte Co.: Prairie Creek Trail north of Hunnewell-Donald Grove, *Jamieson* 69 (UC); Humboldt Co.: Redwood Valley Road about 0.65 mile from Highway 299, *Farr* 77 (UC) [determined by Jamieson] and Haul Road on south margin of Prairie Creek, Prairie Creek Redwoods State Park, *Norris* 71735 & *Jamieson* 69 (UC); Lake Co.: Alder Creek, Cobb Mountain, *Toren & Dearing* 7096 (CAS); Santa Cruz Co.: Barrel Mill Creek, Ben Lomond Mountain, *Kellman* 679 (CAS).

***Pleuridium acuminatum* Lindberg** [Ditrichaceae]

**Literature:** Kellman 2003; Koch 1950a; Shevock and Toren 2001; Yip 2000, 2002; Yurky 1995. As *Pleuridium bakeri* Cardot and Thériot 1904. As *Pleuridium bakeri* var. *elongatum* Cardot and Thériot 1904. As *Pleuridium bolanderi* Bourell 1981; Brandegee 1891; Harpel 1980a; Harthill et al. 1979; Kingman 1912; Koch 1950a; Koch and Ikenberry 1954; Lesquereux and James 1884; Mishler 1978; Steere et al. 1954; Toren 1977. As *Pleuridium californicum* Grout 1928–1940; Harthill et al. 1979; Koch 1950a; Stark and Whitemore 1992. As *Pleuridium stramineum* Austin 1877c; Jamieson 1969; Smith 1970.

**Illustrations:** Smith 1978; Yip 2000.

**Geographic subdivisions:** CW, GV, NW, SN, SW.

**Selected specimens:** Contra Costa Co.: Mt. Diablo State Park, *Norris* 100537; Fresno Co.: Cripe Road, 0.65 miles from junction with Peterson Mill Road, Sierra National Forest, *Shevock & York* 14938 (determined by Yip); Lake Co.: Hidden Valley north of Middletown, *Toren & Dearing* 7578 (CAS) [determined by Yip]; Mendocino Co.: County Road 409 about 1 mile east of Highway 1 south of Fort Bragg, *Norris* 11738, 11747 & 11770 (determined by Yip); Riverside Co.: Forest Road 4S05, San Jacinto Mountains, San Bernardino National Forest, *Harpel* 976 (pers. herb.); Santa Cruz Co.: near Ben Lomond, *Kellman* 190 (CAS); Trinity Co.: near Denny, *Norris* 10723 (determined by Yip).

***Pleuridium subulatum* (Hedwig) Rabenhorst**  
[Ditrichaceae]

**Literature:** Bradshaw 1926; Crum and Anderson 1981; Kellman 2003; Lawton 1971; Lesquereux 1868; Shevock and Toren 2001; Sigal 1975; Watson 1880; Yip 2000, 2002; Yurky 1990, 1995. As *Pleuridium alternifolium* var. *howei* Renauld and Cardot 1893.

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978; Yip 2000.

**Geographic subdivisions:** CaR, CW, GV, NW, SN.

**Selected specimens:** Butte Co.: Neal Road south of Chico to Paradise about 0.5 mile east of Highway 99, *Norris* 10611a (determined by Yip); Del Norte Co.: French Hill, Six Rivers National Forest, *Harpel* 3166 (pers. herb.); Fresno Co.: Sycamore Flat Campground, Pine Flat Reservoir, Sierra National Forest, *Norris* 50970; Lake Co.: Highway 175 at Loch Lomond along edge of swamp near Hobergs, *Toren* 7444 (CAS) [determined by Yip]; Marin Co.: Temelpa Trail, Mt. Tamalpais State Park, *Yurky* 537 (SFSU); Santa Cruz Co.: Henry Cowell State Park, *Kellman* 594 (CAS).

***Pogonatum contortum* (Menzies ex Bridel) Lesquereux** [Polytrichaceae]

**Literature:** Koch 1950a; Lawton 1971; Lesquereux 1868; Watson 1880. As *Pogonatum laterale* Holmberg 1969; Jamieson 1969.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** NW.

**Selected specimens:** Del Norte Co.: Highway 299, Jedediah Smith Redwoods State Park, *Norris* 85073, trail between Requa and False Klamath Cove, Redwood National Park, *Norris* 70375; Humboldt Co.: Prairie Creek Redwoods State Park, *Norris* 7930 and 2 miles north of Pollywog Butte, *Norris* 23417 and *MacFadden* 22227 (MO), and north of Orick on Fern Canyon Road about 0.1 mile north of Fern Canyon, *Mueller* 6715 (MO) [determined by Pursell].

**\**Pohlia andalusica* (Höhnelt) Brotherus**

[Mniaceae]

**Illustrations:** Ignatov and Ignatova 2003; Ireland 1982; Shaw 1981c.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Del Norte Co.: north side Smith River about 1 mile west of Gasquet, Six Rivers National Forest, *Norris* 70344; Santa Cruz Co.: Mill Street Dam, San Lorenzo River, *Kellman* 2918 (CAS).

***Pohlia annotina* (Hedwig) Lindberg** [Mniaceae]

**Literature:** Crum and Anderson 1981; Flowers 1973; Harthill et al. 1979; Holmberg 1969; Koch 1950a, 1951f; Lawton 1971; McGrew 1976; Shaw 1981c; Showers 1982; Spjut 1971; Strid 1974; Torren 1977.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Shaw 1981c.

**Geographic subdivisions:** CaR, MP, NW.

**Selected specimens:** Modoc Co.: Patterson Lake, South Warner Wilderness, Modoc National Forest, *Harpel* 2283 (pers. herb.); Siskiyou Co.: upper reaches of Scott Camp Creek Basin, *Norris* 53072.

***Pohlia bolanderi* (Lesquereux) Brotherus**

[Mniaceae]

**Literature:** Shaw 1982. As *Bryum bolanderi* Lesquereux 1868. As *Webera bolanderi* Lesquereux and James 1884.

**Illustrations:** Shaw 1982.

**Geographic subdivisions:** NW, SN, SNE, SW.

**Selected specimens:** Fresno Co.: Dinkey Lake, Dinkey Lake Wilderness, Sierra National Forest, *Shevock & York* 13894 (determined by Shaw); Inyo Co.: Chocolate Lake west of Big Pine, John Muir Wilderness, Inyo National Forest, *Norris* 46865 (determined by Shaw); Mono Co.: Lee Vining Creek at Lee Vining Campground, *Norris* 48374 (determined by Shaw); Siskiyou Co.: English Lake, Klamath National Forest, *Spjut* 1562 (UC); Trinity Co.: near Browns Meadow, *Norris* 23139 (determined by Shaw); Tulare Co.: Slate Mountain Botanical Area, headwaters of the Middle Fork Tule River, Sequoia National Forest, *Shevock* 15678 & 15690 and First Mosquito Lake, Mineral King, Sequoia National Park, *Shevock & O'Brien* 15952 (determined by Shaw); Ventura Co.: summit road

near Mt. Pinos about 1 mile below Chula Vista Campground, Los Padres National Forest, *Laeger* 1719 (CAS).

**\**Pohlia bolanderi* (Lesquereux) Brotherus var. *seriata* Shaw** [Mniaceae]

**Illustrations:** Shaw 1982.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Siskiyou Co.: between Waterdog and Russian Lakes, Klamath National Forest, *McGrew* 363 (UC) [confirmed by Spence]; Tuolumne Co.: below Olmstead Point, Tioga Road, Yosemite National Park, *Kellman* 552 (CAS).

***Pohlia campotrichela* (Renauld & Cardot)**

**Brotherus** [Mniaceae]

**Literature:** Koch 1958; Koch and Ikenberry 1954; Renauld and Cardot 1888; Shaw 1981c.

**Illustrations:** Ignatov and Ignatova 2003; Shaw 1981c.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Fresno Co.: Highway 180 about 2.5 miles north of Indian Basin, Sequoia National Forest, *Shevock & York* 17137 and between Crown Creek and Blue Canyon, Kings Canyon National Park, *Shevock & York* 14136 (determined by Shaw); Humboldt Co.: junction of Thomas Road and Salmon Creek Road, *Nomura & Kim* 103 (UC) and Tish-Tang-a-Tang Creek near Grogans Hole, Six Rivers National Forest, *Norris* 47832 (determined by Shaw); Inyo Co.: Baxter Pass Trail, Bighorn Sheep Zoological Area, John Muir Wilderness, Inyo National Forest, *Shevock* 16617; Madera Co.: Norris Creek along Norris Lake Trail, Sierra National Forest, *Shevock & Kellman* 19696 (determined by Shaw); Mariposa Co.: Summit Road about 2 miles north of Fish Camp, Sierra National Forest, *Norris* 85363; Placer Co.: near Haig Tree, Tahoe Redwood Grove, Tahoe National Forest, *Koch* 3155 (UC) [determined by Shaw]; Siskiyou Co.: near Doe Flat, *Norris* 47931 (determined by Shaw); Tulare Co.: trail from Silliman Pass to Lodgepole, Sequoia National Park, *Norris* 46526; Tuolumne Co.: near Herring Creek Reservoir, Stanislaus National Forest, *Norris* 100399.

***Pohlia cardotii* (Renauld in Renauld & Cardot)**

**Brotherus** [Mniaceae]

**Literature:** Shaw 1982.

**Illustrations:** Lawton 1971; Shaw 1982.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Inyo Co.: vicinity of Heart Lake on trail from Onion Valley to Kearsarge Pass, John Muir Wilderness, Inyo National Forest, *Norris* 46817; Tulare Co.: slopes above Ranger Lakes at Silliman Pass, Kings Canyon National Park, *Norris* 46539 (determined by Shaw).

***Pohlia cruda* (Hedwig) Lindberg** [Mniaceae]

**Literature:** Crum and Anderson 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Howe 1896; Jamieson 1969; Koch 1950a,



1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Long 1978; McGrew 1976; Shaw 1982; Showers 1982; Strid 1974; Yurky 1990, 1995. As *Bryum cridum* Lesquereux 1868; Watson 1880. As *Webera cruda* Lesquereux and James 1884.

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Ochyra 1998a; Shaw 1982; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, MP, NW, SN, SNE, SW.

**Selected specimens:** Del Norte Co.: Mill Creek, Jedediah Smith Redwood State Park, *Norris 23110* (determined by Shaw); Inyo Co.: east of Dragon Peak and north of Golden Trout Lake, John Muir Wilderness, Inyo National Forest, *Norris 46720* (determined by Shaw); Mariposa Co.: Half Moon Meadow on trail to Ten Lakes, Yosemite National Park, *Shevock, Wilken, & Fritzke 18495* (determined by Shaw); Modoc Co.: about 16 miles east of Medicine Lake on road to Beeler Reservoir, *Norris 22499* (determined by Shaw); Riverside Co.: trail to Mt. San Jacinto, San Jacinto State Park, *Harpel 1048* (pers. herb.); Trinity Co.: above Terrace and Upper Cliff Lakes, *Norris 53011*; Tulare Co.: road to Mineral King near Silver City, Sequoia National Park, *Shevock 17657* (determined by Shaw).

***Pohlia drummondii* (C. Müller Hal.) Andrews in Grout** [Mniaceae]

**Literature:** Flowers 1973; Koch 1950a, 1958; Koch and Ikenberry 1954; Lawton 1971; McGrew 1976; Shaw 1981c, 1982; Showers 1982; Strid 1974. As *Bryum commutatum* Watson 1880. As *Bryum nudicaule* Lesquereux 1868; Watson 1880. As *Webera commutata* Lesquereux and James 1884. As *Webera nudicaulis* Lesquereux and James 1884.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Lawton 1971; Shaw 1981c.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Fresno Co.: Baxter Lake, Kings Canyon National Park, *Shevock & York 16550* (determined by Shaw); Inyo Co.: Dingleberry Lake above Lake Sabrina, John Muir Wilderness, Inyo National Forest, *Raven s.n.* (CAS) [determined by Shaw]; Siskiyou Co.: Squaw Valley Creek, Mount Shasta, Shasta-Trinity National Forest, *W. B. Cooke 15756a-c* (UC) [determined by Shaw]; Tulare Co.: Slate Mountain, Sequoia National Forest, *Shevock 15680*.

***Pohlia elongata* Hedwig** [Mniaceae]

**Literature:** Flowers 1973; Harpel 1980a; Harthill et al. 1979; Long 1978; Shaw 1982. As *Bryum polymorphum* Lesquereux 1868. As *Pohlia acuminata* Koch 1950a. As *Pohlia elongata* var. *greenii* Shaw 1982. As *Webera polymorpha* Lesquereux and James 1884.

**Illustrations:** Allen 2002; Crum and Anderson

1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Shaw 1982; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** SN, SW.

**Selected specimens:** Riverside Co.: Cedar Springs, Santa Rosa Mountains, *Harpel 2348a* (pers. herb.); Tulare Co.: Forest Road 14S11 just east of bridge crossing of Big Meadows Creek, Sequoia National Forest, *Shevock & York 13680* and Marble Falls Trail above Potwisha Campground, Sequoia National Park, *Shevock 12936* (confirmed by Shaw); Unspecified county: *Bolander 347 & 367* (NY).

***Pohlia filum* (W. P. Schimper) Mårtensson** [Mniaceae]

**Literature:** As *Pohlia schleicheri* Toren 1977. **Illustrations:** Ignatov and Ignatova 2003; Shaw 1981c.

**Notes:** The original published source for this taxon as occurring in California has been determined to be a different *Pohlia* species.

**Geographic subdivisions:** CaR, GV, NW.

**Selected specimens:** Shasta Co.: Shasta College turnoff, Interstate 5 north of Redding, *Norris 57777*; Siskiyou Co.: from Cracker Meadows to Young Valley, *Norris & Ignatov 74704*.

**\**Pohlia lescuriana* (Sullivant) Ochi** [Mniaceae]

**Illustrations:** Ignatov and Ignatova 2003; Ireland 1982; Shaw 1982.

**Geographic subdivisions:** CaR, GV, NW.

**Selected specimens:** Del Norte Co.: Coastal Trail between Regua and False Klamath Cove, Redwood National Park, *Norris 24001*; Humboldt Co.: near Round Prairie about 3 miles north of Highway 299 on Wiregrass Ridge, *Norris 52911* (determined by Shaw) and near Coyote Peak on Bald Hills Road, *Norris 22343*; Tehama Co.: Battle Creek southeast of Manton, *Norris 21320*.

***Pohlia longibracteata* Brotherus in Röhl** [Mniaceae]

**Literature:** Holmberg 1969; Jamieson 1969; Kellman 2003; Koch 1950a; Lawton 1971; Shaw 1982; Steere et al. 1954; Thomson and Ketchledge 1958; Yurky 1990, 1995. As *Mniobryum longibracteatum* Koch and Ikenberry 1954.

**Illustrations:** Lawton 1971; Shaw 1982.

**Geographic subdivisions:** CW, NW, SN.

**Selected specimens:** Del Norte Co.: Damnation Creek, Del Norte Redwood State Park, *Norris & Taranto 10972*; Humboldt Co.: about 2 miles north of Redwood Valley, *Norris 21203* (determined by Shaw); Marin Co.: north of Mt. Tamalpais, *Toren 315* (SFSU); Mendocino Co.: Highway 1 near Rockport at milepost 101, *Norris 8552* (determined by Shaw); Nevada Co.: Washington Creek, 4.1 miles from Highway 20, Tahoe National Forest, *Shevock & Toren 20734* (confirmed by Shaw); Santa Cruz Co.: near Porter Picnic area, 2.8 miles north of Aptos, Forest of Nisene Marks State Park, *D. W.*

*Taylor 14662* (UC) and Wilder Creek, *Kellman 827* (CAS).

***Pohlia ludwigii* (Sprengel ex Schwägrichen) Brotherus** [Mniaceae]

**Literature:** Koch 1950a; Lesquereux 1868; Spjut 1971. As *Bryum bigelovii* Lesquereux and James 1884; Shaw 1982; Sullivan 1856.

**Illustrations:** Ignatov and Ignatova 2003; Lawton 1971; Shaw 1982.

**Notes:** This species for California is based on the type of *Bryum bigelovii* Sullivan (1856).

**Geographic subdivisions:** SN.

**Selected specimens:** Reported from near Sonora (Tuolumne County) and mapped for the Sierra Nevada in Shaw (1982). However, we have not located a California specimen of this species during our herbarium search in California herbaria.

***Pohlia nutans* (Hedwig) Lindberg** [Mniaceae]

**Literature:** Bradshaw 1926; Crum and Anderson 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Kellman 2003; Kingman 1912; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; McGrew 1976; Shaw 1982; Shevock and Toren 2001; Showers 1982; Spjut 1971; Strid 1974; Yurky 1990, 1995. As *Bryum nutans* var. *bicolor* Lesquereux 1868; Watson 1880.

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Ochrya 1998a; Sharp et al. 1994; Shaw 1982; Smith 1978.

**Geographic subdivisions:** CaR, CW, NW, SN, SNE.

**Selected specimens:** Alameda Co.: near Claremont Hotel, Berkeley, *Morse 26* (UC) [determined by Shaw]; Fresno Co.: between Crown Creek and Blue Canyon, Kings Canyon National Park, *Shevock & York 14142* (determined by Shaw); Lake Co.: south shore of Clear Lake at Sulfur Bank Mine, *Toren & Dearing 7278* (CAS); Mendocino Co.: Pgymy Cypress Forest along Summers Lane near Highway 20 and Fort Bragg, *Norris 11768*; Mono Co.: near Lake Mary, Mammoth Lakes region, Inyo National Forest, *Shevock & Nelson 13787* (determined by Shaw); Nevada Co.: Sagehen Creek Biological Station, Tahoe National Forest, *Tavares 1963* (UC) [determined by Shaw]; Siskiyou Co.: trail to Paradise Lake about 1 mile from Marble Valley Guard Station, *Spjut 1140* (UC); Tulare Co.: Slate Mountain Botanical Area, Sequoia National Forest, *Shevock 15680* (determined by Shaw).

***Pohlia obtusifolia* (Villars ex Bridel) L. Koch** [Mniaceae]

**Literature:** Koch 1950a, 1958; McGrew 1976; Shaw 1982. As *Bryum cucullatum* Lesquereux 1868; Watson 1880. As *Webera cucullata* Lesquereux and James 1884.

**Illustrations:** Lawton 1971; Shaw 1982; Smith 1978.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Fresno Co.: Highway 180 near Yucca Point Trail, Sequoia National Forest, *Shevock 12469* and near Tafoose Pass, Kings Canyon National Park, *York 1520* (UC); Inyo Co.: north of Mt. Powell near Lake Sabrina, Outlet Creek, John Muir Wilderness, Inyo National Forest, *Laeger 46a* (CAS, DUKE) [determined by Shaw]; Kern Co.: Cache Creek east of Horse Canyon north of Tehachapi, *Shevock & Hare 14908*; Mono Co.: Koenig Lake near Leavitt Lake, east of Sonora Pass, Toiyabe National Forest, *Spjut, Norris, & J. Koponen 6260* (UC).

***Pohlia pacifica* A. J. Shaw** [Mniaceae]

**Literature:** Kellman 2003; Shaw 1982.

**Illustrations:** Shaw 1982.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Del Norte Co.: Del Norte Redwoods State Park, *Shaw 4173* (MICH) and Prairie Creek Redwoods State Park, *Norris & Piip-pi 82472*; Lake Co.: between Summit Lake and Smokehouse Creek, Mendocino National Forest, *Toren & Dearing 7651* (CAS) [confirmed by Shaw]; Marin Co.: Chimney Peak Trailhead, *Robertson 1834* (UC); Santa Cruz Co.: Big Creek in Swanton, *Kellman 1906* (CAS) and Ben Lomond, San Lorenzo River, *Kellman 1164* (CAS).

***Pohlia prolifera* (Kindberg) Brotherus** [Mniaceae]

**Literature:** Crum and Anderson 1981; Shaw 1981c, 1982; Showers 1982.

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Shaw 1981c, 1982; Smith 1978.

**Geographic subdivisions:** CaR, MP, SN, SNE.

**Selected specimens:** Inyo Co.: Tafoose Creek Trail, John Muir Wilderness, Inyo National Forest, *Shevock 13881* (determined by Shaw); Modoc Co.: Patterson Lake, South Warner Wilderness, Modoc National Forest, *Harpel 2284* (pers. herb.); Siskiyou Co.: Sisson Southern Trail, Mt. Shasta, *Cooke 15657c* (UC) [determined by Shaw].

***Pohlia tundrae* A. J. Shaw** [Mniaceae]

**Literature:** Shaw 1981a, 1981c, 1982.

**Illustrations:** Shaw 1981a, 1981c, 1982.

**Geographic subdivisions:** NW, SN, SNE.

**Selected specimens:** Fresno Co.: South Fork Tamarack Creek, Highway 168 between Shaver Lake and Huntington Lake, Sierra National Forest, *Norris 99908*; Inyo Co.: above Robinson Lake south of Onion Valley, Inyo National Forest, *Norris 46638*; Siskiyou Co.: Bingham Lake, *McGrew 637* (UC); Tulare Co.: Primrose Lake, Sequoia National Park, *J.T. Howell s.n.* (CAS) and Bakeoven Meadows, Inyo National Forest, *J.T. Howell s.n.* (CAS) [determined by Shaw].



***Pohlia wahlenbergii* (Weber & D. Mohr)****Andrews in Grout** [Mniaceae]

**Literature:** Bourell 1981; Crum and Anderson 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Long 1978; McGrew 1976; Mishler 1978; Shaw 1981f, 1982; Shevock and Toren 2001; Showers 1982; Spjut 1971; Toren 1977. As *Bryum albicans* Brandegee 1891; Lesquereux 1868; Watson 1880. As *Mniobryum albicans* Kingman 1912. As *Mniobryum wahlenbergii* Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954. As *Webera albicans* Lesquereux and James 1884; Moxley 1928.

**Illustrations:** Allen 2002; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Koponen et al. 1995; Lawton 1971; Sharp et al. 1994; Shaw 1982; Smith 1978.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SNE, SW.

**Selected specimens:** Fresno Co.: near junction between Dinkey and Mystery Lake, Dinkey Lakes Wilderness, Sierra National Forest, *Shevock & York 13929* (confirmed by Shaw); Humboldt Co.: along Dyerville to Mattole Road about 2 miles north of Panther Gap, *Norris 24129* (determined by Shaw); Modoc Co.: Big Valley Mountains, *Baker & Nutting s.n.* (UC) [confirmed by Shaw]; Monterey Co.: town of Arroyo Seco along Highway 101, *Norris 48520* (determined by Shaw); Nevada Co.: Washington Road, 2.7 miles from Highway 20, Tahoe National Forest, *Shevock & Toren 20714*; San Francisco Co.: San Francisco, *Rattan s.n.* (UC) [determined by Shaw]; Santa Barbara Co.: La Jolla Vieja Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock & Rodriguez 20866* (determined by Shaw); Tulare Co.: Watchtower Loop Trail to Heather Lake, Sequoia National Park, *Shevock 16456* (determined by Shaw).

***Polytrichastrum alpinum* (Hedwig) G. L. Smith**

[Polytrichaceae]

**Literature:** Kellman 2003; McGrew 1976; Shevock and Toren 2001. As *Pogonatum alpinum* Cooke 1941; Flowers 1973; Holmberg 1969; Howe 1897; Ireland 1982; Koch 1950a, 1958; Lawton 1971; Lesquereux 1868; Showers 1982; Spjut 1971. As *Pogonatum alpinum* var. *brevifolium* Watson 1880. **Illustrations:** Flowers 1973; Ignatov and Smith Merrill 1995; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Ochrya 1998a; Sharp et al. 1994; Smith 1971; Smith 1978.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SNE.

**Selected specimens:** Del Norte Co.: Smith River along Highway 199 about 9 miles east of junction with Highway 1, Six Rivers National Forest, *Norris 85029*; Inyo Co.: slopes above George Lake west of Bishop, John Muir Wilderness, Inyo National Forest, *Norris 71448*; Modoc Co.: Highway 89 at Bear Creek, *Norris 77949*; San Francisco Co.: Mt. Davidson, *Toren 7764* (CAS); Santa Cruz Co.:

West Berry Creek, Big Basin Redwoods State Park, *Kellman 2487* (CAS); Shasta Co.: Summit Lake, Highway 89, Lassen Volcanic National Park, *Duell 2079* (UC); Trinity Co.: Rush Creek below Rush Creek Lakes, Trinity Alps Wilderness, Shasta-Trinity National Forest, *Norris 85411*.

***Polytrichum commune* Hedwig** [Polytrichaceae]

**Literature:** Bradshaw 1926; Flowers 1973; Ireland 1982; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; McGrew 1976; Showers 1982; Spjut 1971.

**Illustrations:** Abramov and Volkova 1998; Flowers 1973; Ignatov and Ignatova 2003; Ignatov and Smith Merrill 1995; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1971, 1978.

**Notes:** The Humboldt County plants in coastal prairie areas are up to 1 foot tall.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Calaveras Co.: Highway 4 at road to Spicer Reservoir, Stanislaus National Forest, *Norris 77177*; Fresno Co.: east slope Bald Mountain, Sierra National Forest, *Shevock 10992*; Humboldt Co.: Christmas Prairie, *Bonstell s.n.* (UC); Mendocino Co.: Pygmy Cypress Forest along Caspar Little Lake Road about 6 miles east of Highway 1, *Norris & Piippo 82501*; Nevada Co.: Pacific Crest Trail south of Interstate 80, Donner Summit, Tahoe National Forest, *Whitemore 4158* (MO); Siskiyou Co.: near Doe Flat, *Norris 47938*; Tulare Co.: edge of Heather Lake, Sequoia National Park, *Shevock 16489*; Tuolumne Co.: Wheat's Meadow Trail near Whittakers, Dardanelles, Stanislaus National Forest, *Somer 86* (MO).

***Polytrichum formosum* Hedwig** [Polytrichaceae]

**Literature:** Koch 1950a; McGrew 1976; Showers 1982.

**Illustrations:** Abramov and Volkova 1998; Ignatov and Smith Merrill 1995; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1971, 1978. As *Polytrichastrum formosum* Ignatov and Ignatova 2003.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Alpine Co.: Highway 89 at Hope Valley, *Norris 48477*; Butte Co.: North Table Mountain, northeast of Cherokee Road, *Janeway 5568* (MO) [determined by Whitemore]; Inyo Co.: Horton Lakes area, Inyo National Forest, *Harpel 2369* (pers. herb.); Mono Co.: Gardisky Lake west of Lee Vining, Inyo National Forest, *Norris 104223*; Siskiyou Co.: Duck Lakes trail near Parrott's Mill Road, *Norris 22818* and Pacific Crest Trail about 30 miles northeast of Sneed Valley, *G. Allen 712* (MO) [determined by Allen]; Tulare Co.: Big Meadows near Ranger Station, Sequoia National Forest, *Shevock 13670*.

***Polytrichum juniperinum* Hedwig** [Polytrichaceae]

**Literature:** Bourell 1981; Cooke 1941; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Ireland 1982; Jamieson 1969; Kellman 2003; Koch 1950a,

1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Long 1978; McGrew 1976; Shevock and Toren 2001; Showers 1982; Smith 1970; Spjut 1971; Strid 1974; Sullivant 1856; Toren 1977; Watson 1880; Yurky 1990, 1995.

**Illustrations:** Flowers 1973; Ignatov and Ignatova 2003; Ignatov and Smith Merrill 1995; Ireland 1982; Lawton 1971; Ochrya 1998a; Sharp et al. 1994; Smith 1971, 1978.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SNE, SW.

**Selected specimens:** Del Norte Co.: Forest Road 4803, Siskiyou National Forest, *Norris* 70904; San Francisco Co.: Glen Canyon, San Miguel Hills, *Shevock* 18882 & 18892; Santa Barbara Co.: Water Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock & Rodriguez* 20808; Santa Cruz Co.: Highway 9 about 1.5 miles north of Boulder Creek, *Norris* 55572; Siskiyou Co.: Soda Creek Road about 4 miles northeast of Interstate 5 near Dunsmuir, Shasta-Trinity National Forest, *Norris* 84810; Sonoma Co.: South Ridge Trail above Lake Sonoma at Skaggs Springs Road, *Norris* 86916; Tulare Co.: Grapevine Grade along County Road M-15, between White River and California Hot Springs, *Shevock* 6766.

***Polytrichum longisetum* Swartz ex Bridel**

[Polytrichaceae]

**Literature:** Ireland 1982. As *Polytrichum gracile* Flowers 1973; Koch 1950a. As *Polytrichastrum longisetum* Lawton 1971.

**Illustrations:** Abramov and Volkova 1998; Flowers 1973; Ignatov and Smith Merrill 1995; Ireland 1982; Lawton 1971; Smith 1971. As *Polytrichastrum longisetum* Ignatov and Ignatova 2003.

**Geographic subdivisions:** MP, NW, SN, SNE.

**Selected specimens:** Fresno Co.: west of Palisade Crest, Glacier Lake, Kings Canyon National Park, *DeDecker* 2796 (CAS); Inyo Co.: above Robinson Lake south of Onion Valley, Inyo National Forest, *Norris* 46635; Modoc Co.: Alcohol Crater Rim, Modoc National Forest, *Harpel* 16319 (pers. herb.); Siskiyou Co.: ridges south of Cyclone Gap, *Holmberg* 878 (UC); Tulare Co.: Crabtree Meadows, west of Mt. Whitney, Sequoia National Park, *Raven s.n.* (CAS).

***Polytrichum piliferum* Hedwig** [Polytrichaceae]

**Literature:** Bourell 1981; Coville 1893; Flowers 1973; Harthill et al. 1979; Holmberg 1969; Ireland 1982; Kellman 2003; Kingman 1912; Koch 1950a, 1958; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; McGrew 1976; Mishler 1978; Shevock and Toren 2001; Showers 1982; Strid 1974; Sullivant 1856; Toren 1977; Watson 1880; Yurky 1990, 1995.

**Illustrations:** Flowers 1973; Ignatov and Ignatova 2003; Ignatov and Smith Merrill 1995; Ireland 1982; Lawton 1971; Ochrya 1998a; Smith 1978.

**Geographic subdivisions:** CaR, CW, MP, SN, SNE, SW.

**Selected specimens:** Del Norte Co.: along Oregon Mountain Road near Highway 199 about 6 miles south of the Oregon border, *Norris* 9869; Fresno Co.: near Boyden Cave, Monarch Wilderness, Sequoia National Forest, *Shevock & York* 12293; Lake Co.: Bachelor Valley near Hell's Peak, *Toren & Dearing* 6856 (CAS); Mono Co.: above Second Tyee Lake south of Mammoth Lakes, Inyo National Forest, *Norris* 86812; Monterey Co.: bluffs at the Pinnacles, Hunter-Liggett Military Reservation, *Norris* 87294; Tehama Co.: Highway 36 east of Red Bluff at Seven Mile Creek, *Norris* 21303.

***Polytrichum sexangulare* Flörke ex Bridel**

[Polytrichaceae]

**Literature:** Showers 1982.

**Illustrations:** Ignatov and Smith Merrill 1995; Lawton 1971; Smith 1971. As *Polytrichastrum sexangulare* Ignatov and Ignatova 2003.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Fresno Co.: slopes from Mono Pass to Golden Lake, *Norris* 47032; Inyo Co.: slopes above Chocolate Lake west of Big Pine, John Muir Wilderness, Inyo National Forest, *Norris* 46872 & 46875 and slopes above Treasure Lake, Inyo National Forest, *Norris* 46966; Shasta Co.: near Soda Lake, Lassen Volcanic National Park, *Showers* 837 (UC); Tulare Co.: summit plateau of Table Mountain, Sequoia National Park, *Laeger* 162 (CAS, UC).

**\**Polytrichum strictum* Menzies ex Bridel**

[Polytrichaceae]

**Illustrations:** Ignatov and Ignatova 2003; Smith 1978.

**Geographic subdivisions:** SN.

**Selected specimens:** Nevada Co.: about 0.5 mile northeast of Bowman Lake, Tahoe National Forest, *Ahart* 10612 (UC).

***Porotrichum bigelovii* (Sullivant) Kindberg**

[Neckeraceae]

**Literature:** Bourell 1981; Frantz and Cordone 1967; Holmberg 1969; Jamieson 1969; Showers 1982; Yurky 1990, 1995. As *Hypnum bigelovii* Lesquereux 1868; Sullivant 1856; Watson 1880. As *Porothamnium bigelovii* Bradshaw 1926; Kellman 2003; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Smith 1970; Spjut 1971; Steere et al. 1954; Thomson and Ketchledge 1958. **Illustrations:** Lawton 1971; Schofield and Thompson 1966; Sullivant 1856.

**Geographic subdivisions:** CaR, CW, NW, SN, SW.

**Selected specimens:** Del Norte Co.: Highway 199 about 9 miles east of junction with Highway 101, Six Rivers National Forest, *Norris* 84993; El Dorado Co.: Bear Creek Picnic Area southeast of Georgetown, Eldorado National Forest, *Norris & Piippo* 82323; Lake Co.: Alder Creek, Cobb Mountain, *Toren & Dearing* 7087 (CAS); Mendocino



Co.: seaward bluffs near Ranger Station, Sinkyone Wilderness State Park, *Norris* 71743; San Francisco Co.: Delaveaga Dell, AIDS Memorial Grove, Golden Gate Park, *Hermann* 17451 and *Shevock* 19526; Santa Barbara Co.: Lobos Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock* & *Rodriguez* 20852; Tulare Co.: Lake Canyon Creek below Oriole Lake, Sequoia National Park, *Shevock* 17617.

***Pseudobraunia californica* (Lesquereux) Brotherus** [Hedwigiaceae]

**Literature:** Bourell 1981; Bradshaw 1926; Harthill et al. 1979; Kellman 2003; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Sigal 1975; Steere et al. 1954; Thomson and Ketchledge 1958; Toren 1977; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Braunia californica* Howe 1897; Lesquereux 1868; Lesquereux and James 1884; Watson 1880.

**Illustrations:** Brotherus 1924–1925; Lawton 1971.  
**Geographic subdivisions:** CaR, CW, GV, NW, SN.  
**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris* 87203; Calaveras Co.: Highway 4, 1.2 miles north of Copperopolis, *Shevock* 19327; Glenn Co.: west of town of Elk Creek along Ivory Mill Road, Mendocino National Forest, *Shevock* 15804; Monterey Co.: bluffs at the Pinnacles, Hunter-Leggett Military Reservation, *Norris* 87273; San Benito Co.: Pinnacles National Monument, *J. T. Howell s.n.* (UC); Siskiyou Co.: Soda Creek Road about 4 miles northeast of Interstate 5 near Dunsmuir, Shasta-Trinity National Forest, *Norris* 84799; Tulare Co.: Elk Creek near Potwisha Campground, Middle Fork Kaweah River, Sequoia National Park, *Shevock*, *Norris*, & *Barahona* 13186; Yuba Co.: Highway 20 near Timbuc-too, *Norris* 67491.

***\*Pseudo-calliergon angustifolium* Hedenäs** [Campyliaceae]

**Illustrations:** Hedenäs 1990.  
**Geographic subdivisions:** SNE.  
**Selected specimens:** Inyo Co.: BLM Warm Springs, Inyo Mountains, *Laeger* 1454 (CAS) [determined by Hedenäs].

***\*Pseudo-calliergon trifarium* (Weber & D. Mohr) Loeske** [Campyliaceae]

**Illustrations:** Hedenäs 1990; Smith 1978.  
**Geographic subdivisions:** SN.  
**Selected specimens:** Inyo Co.: east of Pine Creek Pass, John Muir Wilderness, Inyo National Forest, *Weis* 394 (UC) and Gem Lake, Little Lakes Basin, Inyo National Forest, *Weis* & *Hubbs* 402 (UC).

***\*Pseudocrossidium crinitum* (Schultz) Zander** [Pottiaceae]

**Illustrations:** Eckel 1997a; Zander 1993.  
**Geographic subdivisions:** DMoj, DSon, GV, SNE.  
**Selected specimens:** Colusa Co.: Highway 20 at milepost 74, *Norris* 52523 & 52524; Inyo Co.: west

of BLM Goodale Creek Campground, *Norris* 92794 & 92797; San Diego Co.: Palm Canyon, Anza-Borrego State Park, *Norris* 50587; San Bernardino Co.: north slope of Kingston Peak, Kingston BLM Wilderness, *Laeger* & *Bogan* 1745 (CAS).

***Pseudocrossidium obtusulum* (Lindberg) H. Crum & L. E. Anderson** [Pottiaceae]

**Literature:** Eckel 1997a; Kellman 2003; Shevock and Toren 2001. As *Pseudocrossidium revolutum* Zander 1981a.

**Illustrations:** Eckel 1997a; Tan et al. 1981; Zander 1981a.

**Geographic subdivisions:** CW, DMoj, DSon, NW, SN, SNE, SW.

**Selected specimens:** Contra Costa Co.: Antioch Dunes National Wildlife Refuge, *Norris* 97036; Kern Co.: near Visitor Center, Red Rock Canyon State Park, *Shevock*, *Kellman*, & *Laeger* 20535; Lake Co.: Manning Creek, Highway 175, about 4 miles west of Lakeport, *Toren*, *Bourell*, *Dearing*, & *Shevock* 7002a (CAS); Placer Co.: Highway 49 on north face of American River Canyon, 0.6 mile north of junction of Foresthill Road, *Whittemore* 3518 (CAS, MO); Riverside Co.: South Fork San Jacinto River about 7 miles east of Hemet, *Norris* 58050; San Diego Co.: Box Canyon, Anza-Borrego State Park, *Norris* 50636; San Francisco Co.: Army Street at Highway 101, *Toren* 7820 (CAS); Santa Cruz Co.: Highway 9 about 1.5 miles north of Boulder Creek, *Norris* 55558 & 55560; Trinity Co.: Highway 299 about 3.5 miles northwest of Big Bar, Shasta-Trinity National Forest, *T. Sevelson* 11 (UC).

***Pseudoleskeella serpentinensis* P. Wilson & Norris** [Leskeaceae]

**Literature:** Wilson and Norris 1989.  
**Illustrations:** Wilson and Norris 1989.

**Geographic subdivisions:** NW.  
**Selected specimens:** Del Norte Co.: Smith River at Highway 199, Jedediah Smith Redwoods State Park, *Norris* 68927 and Middle Fork Gasquet Road along trail to Stony Creek, *Wilson* 943 & 945 (UC) and west side Smith River about one mile west of Gasquet, *Norris* 70340; Humboldt Co.: junction of Red Mountain and South Red Mountain Road, *Norris* 56452 & 56456; Siskiyou Co.: trail from Wilderness Falls toward Doe Flat, Klamath National Forest, *Norris* 67821 and Doe Creek, *Norris* 23069; Sonoma Co.: The Cedars about 7 miles north of Cazadero, *Robertson* 1580 (CAS) & 1561 (UC).

***Pseudoleskeella tectorum* (Funck ex Bridel) Kindberg ex Brotherus** [Leskeaceae]

**Literature:** Spjut 1971; Wilson and Norris 1989.  
**Illustrations:** Ignatov and Suragina 2000; Lawton 1971; Lewinsky 1974; Wilson and Norris 1989. As *Leskeella tectorum* Flowers 1973.

**Geographic subdivisions:** DMoj, SW.  
**Selected specimens:** Inyo Co.: slopes of Rogers

Peak, Panamint Mountains, Death Valley National Park, *Shevock, York, & Davis 21363*; Riverside Co.: summit of Toro Peak, Santa Rosa Mountains, *Harpel 2352* (pers. herb.) and Garnet Queen Creek, Santa Rosa Mountains, San Bernardino National Forest, *Shevock 20528*; San Bernardino Co.: Curtis Canyon, Clark Mountains Wilderness, Mojave National Preserve, *Shevock, Spence, Glazer, & Laeger 23636* and Kingston Peak, Kingston BLM Wilderness, *Laeger & Bogan 1753, 1755, & 1761*.

**\**Pseudoscleropodium purum* (Hedwig) Fleischer in Brotherus** [Brachytheciaceae]

**Illustrations:** Buck 1998; Crum and Anderson 1981; Lawton 1971; Smith 1978.

**Notes:** This species is a recent introduction to the California bryoflora occurring as a coastal lawn weed.

**Geographic subdivisions:** NW.

**Selected specimens:** Humboldt Co.: lawns on the campus of Humboldt State University, Arcata, *Norris 71990b*.

***Pseudotaxiphyllum elegans* (Bridel) Iwatsuki** [Hypnaceae]

**Literature:** Kellman 2003; Shevock and Toren 2001. As *Isopterygium borrierianum* Holmberg 1969; Jamieson 1969. As *Isopterygium elegans* Koch 1950a; Lawton 1971; McGrew 1976; Showers 1982; Yurky 1990, 1995.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Del Norte Co.: Coastal Trail between Requa and False Klamath Cove, Redwood National Park, *Norris 24059*; Humboldt Co.: Prairie Creek Redwoods State Park, *MacFadden 22251* (MO); Mendocino Co.: Simpson Road, Jackson State Forest, *Showers 3193* (SFSU, UC); San Francisco Co.: Mt. Davidson, *Toren 7804* (CAS) and Mt. Sutro, *Shevock 19179*; Shasta Co.: Upper Kings Creek, Lassen Volcanic National Park, *Showers 2257* (SFSU); Siskiyou Co.: near Sugar Lake, Klamath National Forest, *Norris & McGrew 45615*; Sonoma Co.: Gualala River near Lee Noble Road, *Norris 86973*; Trinity Co.: about 1 mile below Rush Creek Lakes, Shasta-Trinity National Forest, *Norris 85406*; Tuolumne Co.: border of Emigrant Wilderness along Burst Rock Trail about 8 air miles east of Strawberry, Stanislaus National Forest, *Norris 82975*.

***Pterigynandrum filiforme* Hedwig** [Pterigynandraceae]

**Literature:** Howe 1896; Koch 1950a, 1951e; Lawton 1971; Lesquereux 1868; McGrew 1976; Showers 1982; Spjut 1971; Sullivant 1856; Toren 1977; Watson 1880.

**Illustrations:** Brotherus 1924–1925; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Colusa Co.: about 1.2 miles east of Sites, *Norris 72675*; Fresno Co.: Cedar

Grove along trail between Avalanche and Bubbs Creek, Kings Canyon National Park, *Shevock 13768*; Humboldt Co.: Friday Ridge Road at junction with Titlow Hill Road, Six Rivers National Forest, *Norris 76790*; Lake Co.: Mill Creek, Mt. Sanhedrin, Mendocino National Forest, *Toren 7142* (CAS); Tehama Co.: Battle Creek along Forest Road 29N35 about 4 miles east of Mineral, Lassen National Forest, *Norris 48157*; Trinity Co.: Canyon Creek between Ripstein Camp and McKay Camp, Klamath National Forest, *Norris 7989*; Tulare Co.: Belnap Redwood Grove near Camp Nelson, Sequoia National Forest, *Shevock, Norris, & Barahona 13214*.

***Pterogonium gracile* (Hedwig) J. E. Smith** [Leucodontaceae]

**Literature:** Bourell 1981; Bradshaw 1926; Brandege 1891; Harthill et al. 1979; Holmberg 1969; Jamieson 1969; Kellman 2003; Kingman 1912; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; McCleary 1972; Mishler 1978; Moxley 1928; Shevock and Toren 2001; Steere 1954; Sullivant 1856; Thomson and Ketchledge 1958; Toren 1977; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Pterogonium gracile* var. *californicum* Cardot and Thériot 1900. As *Pterogonium gracile* var. *duplicato-seratum* Lesquereux 1868; Watson 1880.

**Illustrations:** Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** CaR, CW, NW, SN, SW.

**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris 87204*; Fresno Co.: Cedarbrook Picnic area about 1 mile from Highway 245 near Pinehurst, Sequoia National Forest, *Shevock 12815*; Monterey Co.: Big Sur Creek near Pico Blanco Boy Scout Camp, Los Padres National Forest, *Norris 75839*; Riverside Co.: near Lower San Juan Picnic Area, *Norris 58163*; Santa Barbara Co.: Soledad Peak, Santa Rosa Island, Channel Islands National Park, *Shevock & Norris 20747*; Shasta Co.: Fall Creek Road about 1 mile southeast of McCloud Bridge at Shasta Lake, Shasta-Trinity National Forest, *Norris 84861*.

***Pterygoneurum californicum* H. Crum** [Pottiaceae]

**Literature:** Crum 1967a.

**Illustrations:** Crum 1967a.

**Notes:** This species, known only from the type collection, was obtained from an area that is now converted to a mix of urban and agriculture. We have not been able to recollect this species, however, suitable habitat in several nearby preserved landscapes may yet yield a new occurrence.

**Geographic subdivisions:** GV.

**Selected specimens:** Kern Co.: alkali flats along Panama Lane, 5 miles west of Highway 99 near Bakersfield, *Koch 4026* (MICH).



**\**Pterygoneurum lamellatum* (Lindberg) Juratzka** [Pottiaceae]

**Illustrations:** Flowers 1973; Ignatov and Ignatova 2003; Smith 1978; Zander 1993.  
**Geographic subdivisions:** MP.  
**Selected specimens:** Modoc Co.: salt flats about 9 miles east of Cedarville, *Norris* 47435.

***Pterygoneurum ovatum* (Hedwig) Dixon** [Pottiaceae]

**Literature:** Crum and Anderson 1981; Koch 1955; Lawton 1971.  
**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Lawton 1971; Sharp et al. 1994; Smith 1978; Zander 1993.  
**Geographic subdivisions:** DMoj, DSon, GV, MP, SNE.  
**Selected specimens:** Imperial Co.: Clark Lane south of Coyote Wells, Colorado Desert, *Norris* & *Piippo* 82073; Inyo Co.: Forest Road 7S01, 0.4 mile from Highway 168, Inyo National Forest, *Shevock* 15251 and Wildrose Canyon Road, 1 mile west of Charcoal Kilns, Panamint Mountains, Death Valley National Park, *Shevock* & *Harpel* 19056; Kern Co.: Rosamond Dry Lake, *MacFadden* 3522 (MO) [determined by Delgadillo]; Modoc Co.: about 9 miles east of Cedarville, *Norris* 47447 & 47464 and about 2 miles east of Middle Lake, *Norris* 70421; Tulare Co.: Pixley Vernal Pool Preserve, San Joaquin Valley, *McClintock s.n.* (CAS); Ventura Co.: Quatal Canyon at boundary of Los Padres National Forest, *Norris* 55389 & 80842.

***Pterygoneurum subsessile* (Bridel) Juratzka** [Pottiaceae]

**Literature:** Koch 1955. As *Pottia subsessilis* Lesquereux 1868; Sullivant 1856.  
**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Lawton 1971; Sharp et al. 1994; Zander 1993.  
**Geographic subdivisions:** DMoj, MP.  
**Selected specimens:** Inyo Co.: north of the Race-track, Death Valley National Park, *Norris* 10209h (determined by Crum); Modoc Co.: about 9 miles east of Cedarville, *Norris* 47440, 47455, & 47463.

***Ptychomitrium gardneri* Lesquereux** [Ptychomitriaceae]

**Literature:** Howe 1896; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Reese 1998; Sigal 1975; Toren 1977; Watson 1880; Yurky 1990, 1995.  
**Illustrations:** Cao and Vitt 1994; Lawton 1971.  
**Geographic subdivisions:** CaR, CW, NW, SN.  
**Selected specimens:** Butte Co.: Big Chico Creek at northeast boundary of Bidwell Park, *Norris* 70045; Contra Costa Co.: Mitchell Canyon, Mt. Diablo State Park, *Koch* 3300 (UC); Humboldt Co.: Quinby Creek about 3 miles north of Denny, *Norris* 52700; Lake Co.: base of Copper Butte, boundary

of Snow Mountain Wilderness, Mendocino National Forest, *Toren & Bourell* 5160 (CAS); Placer Co.: American River, 1 mile east of Rawhide Mines, *MacFadden* 281 (UC); Siskiyou Co.: Highway 3 above junction with Highway 96 overlooking Klamath River, *Shevock* 16888; Tulare Co.: trail to Marble Falls from Potwisha Campground, Marble Fork Kaweah River, Sequoia National Park, *Shevock* 12965.

**\**Pyramidula tetragona* (Bridel) Bridel** [Funariaceae]

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003.  
**Geographic subdivisions:** CW.  
**Selected specimens:** Santa Barbara Co.: Cherry Canyon above pier, Santa Rosa Island, Channel Islands National Park, *Norris, Bratt, & Chaney* 102098.

***Racomitrium aciculare* (Hedwig) Bridel** [Grimmiaceae]

**Literature:** Bourell 1981; Crum and Anderson 1981; Holmberg 1969; Kellman 2003; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; McGrew 1976; Showers 1982; Spjut 1971; Toren 1977; Watson 1880. As *Grimmia nevii* Howe 1896.  
**Illustrations:** Bednarek-Ochyra 1995; Crum and Anderson 1981; Frye 1917b; Ignatov and Ignatova 2003; Ireland 1982; Koponen et al. 1995; Lawton 1971; Smith 1978; Wagner 1998.  
**Geographic subdivisions:** CaR, CW, NW, SN.  
**Selected specimens:** Fresno Co.: below outlet of Mystery Lake, Dinkey Lakes Wilderness, Sierra National Forest, *Shevock & York* 13922; Humboldt Co.: trail above Bridge Camp west of Clair Eagle Lake, *Norris* 68838; Madera Co.: Forest Highway 81, Chiquito Ridge, Sierra National Forest, *Shevock & Kellman* 19752 (determined by Bednarek-Ochyra); Nevada Co.: near Fuller Lake between Bowman Lake and Highway 20, Tahoe National Forest, *Shevock, Ertter, & Morosco* 15718 (determined by Blom); Santa Cruz Co.: San Lorenzo River below junction with Eagle Creek, *Kellman* 575 (CAS); Tulare Co.: Mineral King, East Fork Kaweah River, Sequoia National Park, *Shevock & O'Brien* 15948 (determined by Blom); Tuolumne Co.: Cherry Creek, Stanislaus National Forest, *Shevock* 19560 (determined by Bednarek-Ochyra).

***Racomitrium affine* (Schleicher ex Weber & D. Mohr) Lindberg** [Grimmiaceae]

**Literature:** Frisvoll 1988. As *Racomitrium heterostichum* var. *alopecurum* Spjut 1971.  
**Illustrations:** Bednarek-Ochyra 1995; Frisvoll 1988; Fyre 1918a; Smith 1978.  
**Geographic subdivisions:** CaR, NW, SN.  
**Selected specimens:** Lake Co.: east of Cobb Mountain, *Toren & Dearing* 7134 (CAS, KRAM) [determined by Bednarek-Ochyra] and north slope of Kneecap Ridge, tributary of Sheep Creek, Men-

docino National Forest, *Toren* 8835 (CAS) [determined by Bednarek-Ochyra]; Plumas Co.: Butterfly Valley Botanical Area northwest of Quincy, Plumas National Forest, *Laeger* 1589 (CAS, KRAM) [determined by Bednarek-Ochyra].

***Racomitrium depressum* Lesquereux**  
[Grimmiaceae]

**Literature:** Frisvoll 1988; Holmberg 1969; Koch 1950a, 1951e; Lesquereux 1868; Lesquereux and James 1884; Showers 1982; Steere et al. 1954; Watson 1880.

**Illustrations:** Frisvoll 1988; Frye 1917b.

**Geographic subdivisions:** CaR, NW, SN, SW.

**Selected specimens:** Alpine Co.: Pacific Creek at Pacific Valley, Highway 4 east of Pacific Grade Summit, *Norris* 77212; Del Norte Co.: Adams Station along Smith River, *Eastwood* 21461 (MO); Fresno Co.: LeConte Canyon, Kings Canyon National Park, *Shevock & Haultain* 18624 (determined by Bednarek-Ochyra); Madera Co.: Forest Highway 81 near Shakeflat Creek, Sierra National Forest, *Shevock & Kellman* 19746 (determined by Bednarek-Ochyra); Mendocino Co.: Upper Baecht Canyon near Willits, *Branscomb* 22472 (MO); Nevada Co.: near Fuller Lake, Tahoe National Forest, *Shevock, Ertter, & Morosco* 15718 (determined by Bednarek-Ochyra); Riverside Co.: North Fork San Jacinto River along Seven Pines Trail, San Jacinto State Park, *Harpel* 1097 (CAS, KRAM) [determined by Bednarek-Ochyra]; Tehama Co.: Highway 36 at milepost 96, Lassen National Forest, *Norris* 55978 (determined by Bednarek-Ochyra); Tulare Co.: Twisselmann Botanical Area, south side of Sirretta Pass, Kern Plateau, Sequoia National Forest, *Shevock* 17524 (determined by Blom); Tuolumne Co.: Highway 120 near Tamarack Flat, Yosemite National Park, *Shevock* 18475 (determined by Bednarek-Ochyra).

***Racomitrium elongatum* Ehrhart ex Frisvoll**  
[Grimmiaceae]

**Literature:** Frisvoll 1983; Kellman 2003; Yurky 1995.

**Illustrations:** Bednarek-Ochyra 1995; Frisvoll 1983; Wagner 1998.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Del Norte Co.: Gasquet-Oreans Road at Kelsey Creek Trail, Six Rivers National Forest, *Norris & Piippo* 82411 and French Hill Road about 3.5 miles above Highway 199 southwest of Gasquet, *Norris* 85054; Lake Co.: Eight Mile Valley, Cow Mountain BLM Recreation Area, *Toren* 6925 (CAS); Mendocino Co.: BLM Road to Red Mountain east of Ukiah, *Norris* 72610; Santa Cruz Co.: Sempervirens Falls, Big Basin Redwoods State Park, *Kellman* 696 (CAS); Trinity Co.: Highway 299 about 2.6 miles east of Del Loma, *Silver* 875 (UC).

***Racomitrium ericoides* (Hedwig) Bridel**  
[Grimmiaceae]

**Literature:** As *Racomitrium canescens* var. *epilolum* Holmberg 1969. As *Racomitrium canescens* var. *ericoides* Holmberg 1969; Lawton 1971.

**Illustrations:** Bednarek-Ochyra 1995; Frisvoll 1983; Heinonen 1971; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** NW.

**Selected specimens:** Del Norte Co.: Pappas Flat 2 miles west of Gasquet, *Norris* 7810; Humboldt Co.: Highway 33 about 11 miles east of Dinsmore, *Norris* 22045; Mendocino Co.: Highway 1 along South Fork Eel River, *Norris* 8567b; Siskiyou Co.: Butler Flat, *Norris* 10177 and 3.5 miles east of Somes Bar, *Norris* 9985; Sonoma Co.: about 1 mile northeast of Baxman Ranch, 10 miles from Plantation, *Koch* 527 (MO).

**\**Racomitrium fasciculare* (Hedwig) Bridel**  
[Grimmiaceae]

**Illustrations:** Bednarek-Ochyra 1995; Crum and Anderson 1981; Frye 1918a; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** SN.

**Selected specimens:** Amador Co.: above junction of West and East Fork of Panther Creek, *Norris & Shevock* 103276.

***Racomitrium heterostichum* (Hedwig) Bridel**  
[Grimmiaceae]

**Literature:** Bourell 1981; Crum and Anderson 1981; Frisvoll 1988; Harpel 1980a; Holmberg 1969; Kellman 2003; Koch 1950a, 1951e, 1958; McGrew 1976; Showers 1982; Spjut 1971; Stark and Whittemore 1992; Toren 1977. As *Grimmia heterosticha* Howe 1896.

**Illustrations:** Bednarek-Ochyra 1995; Crum and Anderson 1981; Frisvoll 1988; Frye 1918a; Ignatov and Ignatova 2003; Ireland 1976, 1982; Smith 1978; Wagner 1998.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Del Norte Co.: Sanger Lake southeast of O'Brien, (Oregon), Siskiyou National Forest, *Norris* 70840; El Dorado Co.: Sly Park Creek, *Norris* 58617; Lake Co.: Forest Road M-1 at Eel River crossing near Lake Pillsbury, Mendocino National Forest, *Toren* 7441 (CAS); Mariposa Co.: Highway 140 near El Portal, Yosemite National Park, *Shevock* 20452 (determined by Bednarek-Ochyra); Placer Co.: Drum Powerhouse Road, Tahoe National Forest, *Shevock & Norris* 20663 (determined by Bednarek-Ochyra); Santa Cruz Co.: Chalk Mountain, Big Basin Redwoods State Park, *Kellman* 1078 (CAS); Siskiyou Co.: northeast of Cook and Green Pass, Rogue River National Forest, *Shevock & Toren* 20105 (determined by Bednarek-Ochyra); Tulare Co.: Redwood Mountain Redwood Grove, Kings Canyon National Park, *Shevock* 17474.



***Racomitrium lanuginosum* (Hedwig) Bridel**

[Grimmiaceae]

**Literature:** Crum and Anderson 1981.**Illustrations:** Bednarek-Ochyra 1995; Crum and Anderson 1981; Frye 1918a; Ignatov and Cao 1994; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971.**Geographic subdivisions:** CaR, NW.**Selected specimens:** Del Norte Co.: Stony Creek about 1 mile north of Gasquet, North Fork Smith River, *Norris* 9654, 70743 & *Norris & Piippo* 82452; Humboldt Co.: Highway 33 about 11 miles east of Dinsmore, *Norris* 22018; Siskiyou Co.: Interstate 5 at Henley-Hornbrook Exit, *Toren, Mishler, et al.* 7360a (CAS).**\**Racomitrium lawtonae* Ireland** [Grimmiaceae]**Illustrations:** Ireland 1970, 1976.**Geographic subdivisions:** CaR.**Selected specimens:** Siskiyou Co.: Klamath River at Ash Creek Bridge, Klamath National Forest, *Norris & Hillyard* 105223.***Racomitrium macounii* Kindberg** [Grimmiaceae]**Literature:** Frisvoll 1988. As *Racomitrium heterostichum* var. *macounii* Spjut 1971.**Illustrations:** Bednarek-Ochyra 1995; Frisvoll 1988; Frye 1918a; Wagner 1998. As *Racomitrium sudeticum* var. *macounii* Lawton 1971.**Geographic subdivisions:** CaR, NW, SN.**Selected specimens:** El Dorado Co.: between Wrights Lake and Grouse Lake, Eldorado National Forest, *Norris* 76741; Humboldt Co.: East Fork about 5 air miles north of Mad River, Six Rivers National Forest, *Norris* 83885; Mendocino Co.: Highway 101 at milepost 63 north of Willits, *Norris* 8461; Siskiyou Co.: Haypress Meadows, Marble Mountain Wilderness, Klamath National Forest, *Norris* 12323; Trinity Co.: Highway 299 about 4 miles west of Weaverville, *Norris* 73531.***Racomitrium microcarpon* (Hedwig) Bridel**

[Grimmiaceae]

**Literature:** Kellman 2003. As *Racomitrium heterostichum* var. *ramulosum* Koch and Ikenberry 1954.**Illustrations:** Bednarek-Ochyra 1995; Frisvoll 1988; Frye 1918a; Ignatov and Ignatova 2003; Smith 1978.**Geographic subdivisions:** CW, SN.**Selected specimens:** Calaveras Co.: about 1 mile west of Salt Springs Reservoir, Stanislaus National Forest, *Norris & Shevock* 103224; Marin Co.: Mt. Tamalpais north of the Mount Theater Parkway, *Robertson* 328 (UC); Santa Cruz Co.: east side Highway 9 near Boulder Creek, *Kellman* 1158 (CAS).**\**Racomitrium molle* Cardot** [Grimmiaceae]**Illustrations:** No illustration located for this species.**Geographic subdivisions:** NW.**Selected specimens:** Siskiyou Co.: Klamath National Forest, Big Duck Lake, *Norris* 23340, Paynes Lake, *Norris* 46334 and Granite Lake, *Norris* 52324 (determined by Bednarek-Ochyra).***Racomitrium norrisii* Bednarek-Ochyra & Ochyra** [Grimmiaceae]**Literature:** Bednarek-Ochyra and Ochyra 2000.**Illustrations:** Bednarek-Ochyra and Ochyra 2000.**Geographic subdivisions:** SN.**Selected specimens:** El Dorado Co.: along South Fork American River at Carpenter Creek, Eldorado National Forest, *Norris* 58441, 58448b, 58449 & 58468 and South Fork American River at Bridal Veil Campground, Eldorado National Forest, *Norris* 58364; Fresno Co.: South Fork Kings River near Deer Cove Creek, Sequoia National Forest, *Shevock* 14499; Mariposa Co.: Merced River near El Portal, Yosemite National Park, *Shevock & Norris* 20162 and Merced River, Redbud Picnic Area, Sierra National Forest, *Shevock & Norris* 20160 (determined by Bednarek-Ochyra); Tuolumne Co.: Columbia, South Fork Stanislaus River, *Gifford & Ikenberry* 51 (DUKE) [determined by Bednarek-Ochyra].***Racomitrium obesum* Frisvoll** [Grimmiaceae]**Literature:** Frisvoll 1988.**Illustrations:** Frisvoll 1988.**Geographic subdivisions:** CaR, MP, NW, SN.**Selected specimens:** Del Norte Co.: Gasquet-Orleans Road about 3 miles from Big Flat, Six Rivers National Forest, *Norris* 74161 and Poker Creek, Siskiyou National Forest, *Shevock & Toren* 20140 & 20142 (determined by Bednarek-Ochyra); Humboldt Co.: head of Mill Creek along Forest Road 10N02, Six Rivers National Forest, *Norris* 70564; Modoc Co.: Highway 89 at Bear Creek, *Norris* 77952; Nevada Co.: Washington Road near Washington Creek, *Shevock & Toren* 20721 (determined by Bednarek-Ochyra); Siskiyou Co.: West Branch Campground northwest of Happy Camp, Klamath National Forest, *Norris* 75781; Tulare Co.: Redwood Mountain Grove, Kings Canyon National Park, *Shevock* 17476 (determined by Bednarek-Ochyra).***Racomitrium occidentale* (Renauld & Cardot) Renauld & Cardot** [Grimmiaceae]**Literature:** Yurky 1995. As *Racomitrium heterostichum* var. *occidentale* Lawton 1971; Yurky 1990.**Illustrations:** Frisvoll 1988; Frye 1918a; Lawton 1971; Wagner 1998.**Geographic subdivisions:** CaR, CW, MP, NW.**Selected specimens:** Humboldt Co.: Highway 299 about 3 miles west of Willow Creek, *Norris* 12029; Marin Co.: Ridge Trail near Five Brooks, Point Reyes National Seashore, *Yurky* 608 & 868 (SFSU); Mendocino Co.: Fox Creek, Branscomb Reserve of The Nature Conservancy, *Norris* 47150; Shasta Co.: Highway 299 east of Burney at milepost 83, *Norris* 21510; Siskiyou Co.: Forest Road

41N05, 7.5 miles from junction with Forest Road 13, Shasta-Trinity National Forest, *Norris & Hillyard 106461*; Trinity Co.: Flame Gulch near Forest Glen, *Norris 22054*.

***Racomitrium pacificum* Ireland & Spence**  
[Grimmiaceae]

**Literature:** Christy and Wagner 1996; Frisvoll 1988; Ireland and Spence 1987.

**Illustrations:** Frisvoll 1988; Ireland and Spence 1987; Wagner 1998.

**Geographic subdivisions:** NW.

**Selected specimens:** Del Norte Co.: North Fork Smith River south of Stony Creek, Six Rivers National Forest, *Norris 9636* (determined by Ireland), Gasquet Toll Road at Twelve Mile Creek, Six Rivers National Forest, *Norris 55885* (determined by Bednarek-Ochyra) and Cedar Creek at junction with Smith River, Six Rivers National Forest, *Norris 9687* (determined by Bednarek-Ochyra); Humboldt Co.: junction of Red Mountain Road and South Red Mountain Road, *Norris 56438*; Siskiyou Co.: trail from Wilderness Falls to Doe Flat, Klamath National Forest, *Norris 67745*.

***Racomitrium sudeticum* (Funck) Bruch & W. P. Schimper** [Grimmiaceae]

**Literature:** Frisvoll 1988. As *Racomitrium heterostichum* var. *sudeticum* McGrew 1976; Showers 1982.

**Illustrations:** Bednarek-Ochyra 1995; Frisvoll 1988; Frye 1918a; Ignatov and Cao 1994; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Ochyra 1998a; Wagner 1998.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Del Norte Co.: Packsaddle Creek, *Norris 52736*; Humboldt Co.: Quinby Creek about 3 miles north of Denny, *Norris 52690*; Shasta Co.: Shotgun Creek near North Fork Shotgun Creek, south-southeast of Sims, *Norris & Hillyard 103875*; Siskiyou Co.: Long Gulch Lake southwest of Callahan, *Norris 57516*; Trinity Co.: Long Gulch Lake, Klamath National Forest, *Spjut, Norris, & J. Koponen 6287* (UC); Tulare Co.: Mineral King above second Mosquito Lake, Sequoia National Park, *Shevock & O'Brien 15973* (determined by Muñoz) and above Crystal Lake, Mineral King, *Shevock & O'Brien 16009* (determined by Blom).

***Racomitrium varium* (Mitten) A. Jaeger**  
[Grimmiaceae]

**Literature:** Bourell 1981; Holmberg 1969; Kellman 2003; Koch 1950a; Lawton 1971; Spjut 1971; Toren 1977; Yurky 1990, 1995.

**Illustrations:** Frye 1918a; Lawton 1971; Wagner 1998.

**Geographic subdivisions:** CW, NW, SN.

**Selected specimens:** Fresno Co.: South Fork Dinkey Creek below Virginia Lake, Sierra National Forest, *Shevock & York 17419* (determined by Muñoz); Lake Co.: Crab Tree Hot Springs, Mendocino National Forest, *Toren & Dearing 5241* (CAS);

Mendocino Co.: along Covelo Road about 3.1 miles northeast of Longvale, *Norris 21682* and Highway 101 at Dora Creek, *Shevock 20373* (determined by Bednarek-Ochyra); Nevada Co.: Washington Road near Washington Creek, Tahoe National Forest, *Shevock & Toren 20723* (determined by Bednarek-Ochyra); Placer Co.: Dutch Flat Reservoir at dam crossing, *Shevock & Norris 20698* (determined by Bednarek-Ochyra); Santa Cruz Co.: Bonny Doon Ecological Reserve, *Kellman 737* (CAS).

***Rhizomnium glabrescens* (Kindberg) T. Koponen** [Mniaceae]

**Literature:** Kellman 2003; Lawton 1971; McGrew 1976; Spjut 1971. As *Mnium glabrescens* Holmberg 1969; Howe 1897; Jamieson 1969; Koch 1950a, 1951e; Thomson and Ketchledge 1958.

**Illustrations:** Koponen 1973a; Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Del Norte Co.: Trees of Mystery to Hidden Beach, *Roskell 10003* (UC); Humboldt Co.: Foothill Trail, Prairie Creek Redwoods State Park, *Norris 46016*; Lake Co.: Alder Creek, Cobb Mountain, *Toren & Dearing 7084* (CAS); Mendocino Co.: Road 409 about 1 mile east of Highway 1 south of Fort Bragg, *Norris 11709*; Placer Co.: Big Tree Grove, Tahoe National Forest, *Koch 3154* (UC); San Mateo Co.: along trail near Little Butano Creek, Butano State Park, *Whittemore 4017* (MO); Siskiyou Co.: Crackers Meadow below Young's Peak, *Norris & Ignatov 74765*; Tulare Co.: trail to Heather Lake via Watchtower Loop near junction with Hump Trail, 2 miles from Wolverton, Sequoia National Park, *Shevock 16459*.

***Rhizomnium magnifolium* (Horikawa) T. Koponen** [Mniaceae]

**Literature:** McGrew 1976. As *Mnium punctatum* var. *elatum* Crum and Anderson 1981; Koch and Ikenberry 1954. As *Rhizomnium perssonii* Lawton 1971; Spjut 1971.

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Del Norte Co.: near Doctor Rock, *Norris 50344*; Humboldt Co.: headwaters Bunch Grass Creek about 0.9 miles north of Big Hill Road, *Norris 47800*; Mendocino Co.: along County Road 409 west of Highway 1, Jackson State Forest, *R.W. Smith 102* (UC); Siskiyou Co.: Kelly Lake about 12 air miles northwest of Happy Camp, Klamath National Forest, *Norris 83284*; Tulare Co.: west side of First Mosquito Lake, Mineral King, Sequoia National Park, *Shevock & O'Brien 15962*.

***Rhizomnium pseudopunctatum* (Bruch & W. P. Schimper) T. Koponen** [Mniaceae]

**Literature:** McGrew 1976.

**Illustrations:** Abramov and Volkova 1998; Ignatov and Ignatova 2003; Lawton 1971; Smith 1978. As



*Mnium pseudopunctatum* Crum and Anderson 1981.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Fresno Co.: trail from Dutch Lake to Florence Lake, Sierra National Forest, *Norris* 71630; Siskiyou Co.: near Duck Lake, *Norris* 22886 and Sugar Lake, Klamath National Forest, *McGrew* 66, 141, & 199 (UC); Tulare Co.: trail to Heather Lake via the Hump Loop Route, Sequoia National Park, *Shevock* 16503.

***Rhizomnium punctatum* (Hedwig) T. Koponen**  
[Mniaceae]

**Literature:** As *Mnium punctatum* Flowers 1973; Koch 1950a, 1958; Lesquereux 1868; Showers 1982; Watson 1880.

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** El Dorado Co.: near Sayles Canyon Trailhead, Eldorado National Forest, *Norris* 70997; Humboldt Co.: north of Orick, Fern Canyon Road west of Highway 101, *Mueller* 6713 (UC); Mendocino Co.: about 4 miles east of Mendocino on Little Lake Road, *Mueller* 6627 (UC); Mono Co.: Lee Vining Grade, Highway 120 about 0.5 mile above Highway 395, *Koch* 1768 (UC).

***Rhytidiadelphus loreus* (Hedwig) Warnstorf**  
[Hylocomiaceae]

**Literature:** Homberg 1969; Ireland 1982; Jamieson 1969; Koch 1950a.

**Illustrations:** Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Humboldt Co.: Prairie Creek Redwoods State Park at James Irvine Trail, *Jamieson* 185 (UC) and 5 miles north of Park Headquarters, *Norris* 68370, Eureka, Jacoby Creek Road at old railroad bridge, *Becking* 65-07-80 (UC), and Greenwood Heights Road about 3.5 miles southeast of Old Arcata Road and 4 miles north of Kneeland, *Norris* 45838 (confirmed by Rohrer); Mendocino Co.: 3 miles south of Piercy, *Flowers* 3966 (NY); San Mateo Co.: Butano Ridge Fire Trail, Butano State Park, *Becking* s.n. (UC); Santa Barbara Co.: cultivated in redwood section of Santa Barbara Botanic Garden, *Laeger* 718 (CAS).

***Rhytidiadelphus squarrosus* (Hedwig) Warnstorf**  
[Hylocomiaceae]

**Literature:** Shevock and Toren 2001.

**Illustrations:** Abramov and Volkova 1998; Lawton 1971; Smith 1978.

**Notes:** This species is likely to occur in California only as a lawn weed in the coastal areas.

**Geographic subdivisions:** CW.

**Selected specimens:** San Francisco Co.: Japanese Tea Garden, Golden Gate Park, *Toren*, *Showers*, & *Smith* 2811 (CAS, SFSU).

***Rhytidiadelphus triquetrus* (Hedwig) Warnstorf**  
[Hylocomiaceae]

**Literature:** Holmberg 1969; Ireland 1982; Koch 1950a, 1951e; Lawton 1971. As *Hylocomium triquetrum* var. *californicus* Renauld and Cardot 1890.

**Illustrations:** Abramov and Volkova 1998; Ignatov et al. 1996; Lawton 1971.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Del Norte Co.: French Hill Road about 3.5 miles above Highway 199 southwest of Gasquet, Six Rivers National Forest, *Norris* 85071 and along Forest Road 4803, Siskiyou National Forest, *Norris* 70879; Humboldt Co.: headwaters of Freshwater Creek about 2 miles southeast of Kneeland, *Norris* 68303; Lake Co.: Forest Road 23N56 north of Low Gap west of Round Mountain just south of Glenn County line, Mendocino National Forest, *Toren* 8805 (CAS); Marin Co.: Rock Spring, Mt. Tamalpais State Park, *Robertson* 2038 (CAS); Placer Co.: Canyon Creek near Dutch Flat, *MacFadden* 9796 (MO); Plumas Co.: 1 mile southwest of Meadow Valley Cemetery and 7 miles west of Quincy, Plumas National Forest, *Dillingham* 928 (CAS); Siskiyou Co.: about 1 mile west of White Mountain near Cook and Green Pass, Klamath National Forest, *Norris* 50190, near West Branch Campground on Happy Camp-O'Brien Road, *Norris* 75772 and Elliott Creek near Seattle Bar, Rogue River National Forest, *Shevock* & *Toren* 20088.

***\*Rhytidiopsis robusta* (W. J. Hooker) Brotherus**  
[Hylocomiaceae]

**Illustrations:** Lawton 1971.

**Notes:** A rather remarkable range extension into California from the Pacific Northwest considering that this species has yet to be located in the coast redwood region of either Del Norte, Humboldt or Mendocino counties. While a labeling error would be likely to explain this record, this moss was actually brought to the senior author by the collector before it was processed as an herbarium specimen.

**Geographic subdivisions:** CW, NW (expected).

**Selected specimens:** San Mateo Co.: Butano Ridge Fire Trail, Butano State Park, *Becking* s.n. (UC).

***Roellia roellii* (Brotherus ex Röhl) Andrews ex H. Crum** [Mniaceae]

**Literature:** Crum 1967b; Holmberg 1969; McGrew 1976; Showers 1982; Spjut 1971. As *Roellia lucida* Koch 1950a. As *Bryum sandbergii* Flowers 1973; Lawton 1971.

**Illustrations:** Flowers 1973; Lawton 1971.

**Geographic subdivisions:** CaR, MP, NW, SN, SNE.

**Selected specimens:** Del Norte Co.: near Doctor Rock, *Norris* 50324; Glenn Co.: south of Plasket Meadows between Jenks Place and Chimney Rock, Mendocino National Forest, *Toren* & *Isle* 8813 (CAS); Mariposa Co.: Half Moon Meadow to Ten Lakes, Yosemite National Park, *Shevock*, *Wilken*, & *Fritzke* 18486; Modoc Co.: Joseph Creek, Warner

Mountains, Modoc National Forest, *Sanger s.n.* (UC); Mono Co.: Barney Lake, Toiyabe National Forest, *Norris 67128* and Lundy Creek, Hoover Wilderness, *Norris & Hillyard 104123*; Tehama Co.: Middle Fork Beegum Creek about 1.5 miles west of Rat Trap Gap, *Norris 57018*; Tulare Co.: Sawtooth Peak Trail, Mineral King, Sequoia National Park, *Shevock & O'Brien 16036*.

***Sanionia uncinata* (Hedwig) Loeske**

[Campylaceae]

**Literature:** As *Drepanocladus uncinatus* Flowers 1973; Ireland 1982; Janssens 1983; Koch 1950a, 1951e, 1958; Lawton 1971; McGrew 1976; Showers 1982; Spjut 1971; Strid 1974. As *Hypnum uncinatum* Lesquereux 1868; Watson 1880.

**Illustrations:** Flowers 1973; Hedenäs 1989c, 1993a, 2003; Ireland 1982; Janssens 1983; Kanda 1978; Lawton 1971; Ochrya 1998a; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Alpine Co.: Highway 89 at Hope Valley, Toiyabe National Forest, *Norris 48475*; Del Norte Co.: exit of Sanger Lake along Forest Road 4803 southeast of O'Brien (Oregon), Six Rivers National Forest, *Norris 70766*; Inyo Co.: above George Lake west of Bishop, John Muir Wilderness, Inyo National Forest, *Norris 71489* and Inyo Co.: near Golden Trout Lake northwest of Onion Valley, John Muir Wilderness, Inyo National Forest, *Norris 46694*; Siskiyou Co.: Haypress Meadows, Marble Mountain Wilderness, Klamath National Forest, *Norris 12334*; Tulare Co.: Forest Road 14S11 just east of bridge crossing of Big Meadows Creek, Sequoia National Forest, *Shevock & York 13679*.

***Schistidium agassizii* Sullivant & Lesquereux in Sullivant** [Grimmiaceae]

**Literature:** As *Grimmia agassizii* Crum and Anderson 1981; Flowers 1973; Koch 1950a, 1958; McGrew 1976; Spjut 1971; Strid 1974. As *Grimmia alpicola* Bourell 1981; Crum and Anderson 1981; Flowers 1973; Harpel 1980a; Lawton 1971; McGrew 1976; Showers 1982; Toren 1977.

**Illustrations:** Blom 1998; Bremer 1980a; Crum and Anderson 1981; Flowers 1973; Holmes 1976; Ignatov and Cao 1994; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971.

**Geographic subdivisions:** CaR, NW, SN, SNE, SW.

**Selected specimens:** Inyo Co.: slopes east of Dragon Peak and north of Golden Trout Lake near Onion Valley, John Muir Wilderness, Inyo National Forest, *Norris 46726*; Madera Co.: Jackass Creek above Minarets Road, Sierra National Forest, *Shevock & Kellman 19700* (determined by Blom); Mariposa Co.: below Glacier Point Road along Bridalveil Creek, Yosemite National Park, *Shevock & Norris 20189* (determined by Blom); Siskiyou Co.: Klamath River at Clear Creek, *Norris 10506*; Trinity Co.: Highway 36 at North Fork Rattlesnake

Creek about 4 miles east of Forest Glen, *Norris 23783*; Tulare Co.: Mineral King, East Fork Kaweah River, Sequoia National Park, *Shevock & O'Brien 15947* (determined by Blom); Tuolumne Co.: South Fork Tuolumne River at Highway 120, Yosemite National Park, *Shevock 18473* (determined by Blom); Ventura Co.: Chorro Grande Canyon about 1 mile north of Highway 33, Los Padres National Forest, *Norris 55542*.

***Schistidium atrichum* (C. Müller Hal. & Kindberg) W. A. Weber** [Grimmiaceae]

**Literature:** As *Grimmia atricha* Flowers 1973; Koch 1949a, 1950a; Lawton 1971; Showers 1982; Toren 1977.

**Illustrations:** Flowers 1973; Lawton 1971.

**Geographic subdivisions:** CaR, SW.

**Selected specimens:** San Bernardino Co.: northeast slope of Mt. San Antonio, Lytle Creek Canyon, San Gabriel Mountains, Angeles National Forest, *Wheeler s.n.* (UC) [determined by Blom]; Siskiyou Co.: Mt. Shasta, Shasta-Trinity National Forest, *Howe s.n.* (NY) [determined by Blom].

***Schistidium cinclidodonteum* (C. Müller Hal. in Röhl) B. Bremer** [Grimmiaceae]

**Literature:** As *Grimmia cinclidodonteum* Flowers 1973; Harpel 1980a; Harthill et al. 1979; Long 1978; Spjut 1971. As *Grimmia pacifica* Lawton 1979.

**Illustrations:** Flowers 1973; Lawton 1971; Robinson and Hermann 1964.

**Geographic subdivisions:** CaR, NW, SN, SNE, SW.

**Selected specimens:** Alpine Co.: Highway 4 about 4.8 miles west of Ebbetts Pass, Stanislaus National Forest, *Shevock 19963* (determined by Blom); Lake Co.: Upper Nye Camp just north of Snow Mountain Wilderness boundary, Mendocino National Forest, *Shevock, Bourell, & Toren 15839* (determined by Blom); Madera Co.: Minarets Road at Rock Creek, Sierra National Forest, *Shevock & Kellman 19762* (determined by Blom); Riverside Co.: Seven Pines Trail, San Bernardino National Forest, *Harpel 1131* (CAS); Tulare Co.: North Fork Kaweah River at junction with Redwood Creek, Kings Canyon National Park, *Shevock 16642* (determined by Blom).

***Schistidium confertum* (Funck) Bruch & W. P. Schimper** [Grimmiaceae]

**Literature:** Blom 1996. As *Grimmia apocarpa* var. *conferta* Flowers 1973. As *Grimmia conferta* Lesquereux 1868.

**Illustrations:** Blom 1996, 1998.

**Geographic subdivisions:** CaR, CW, NW.

**Selected specimens:** Contra Costa Co.: south shore of Briones Reservoir, *Norris & Hillyard 106534*; Lake Co.: Crockett Camp Trailhead to Snow Mountain Wilderness, Mendocino National Forest, *Toren & Bourell 5140a* (CAS) and below West Peak, *Toren & Dearing 7469* (CAS) [determined by Blom];



Siskiyou Co.: Mt. Shasta, *Howe s.n.* (NY) [determined by Blom].

***Schistidium dupretii* (Thériot) W. A. Weber**  
[Grimmiaceae]

**Literature:** Blom 1996. As *Grimmia alpicola* var. *dupretii* Harthill et al. 1979; Mishler 1978. As *Grimmia dupretii* Holmberg 1969; Spjut 1971.

**Illustrations:** Blom 1996, 1998; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Lawton 1971.

**Geographic subdivisions:** CaR, NW.

**Selected specimens:** Shasta Co.: Shotgun Creek near North Fork Shotgun Creek, south-southeast of Sims, *Norris & Hillyard 103888*; Siskiyou Co.: between Big Flat and Yellow Rose Mine, *Norris 9116* (COLO) [determined by Blom], Edgar Creek about 3.6 miles east of junction with Forest Road 13, Shasta-Trinity National Forest, *Norris & Hillyard 106480*.

***Schistidium flaccidum* (De Notaris) Ochyra**  
[Grimmiaceae]

**Literature:** Blom 1996. As *Grimmia flaccida* Toren 1977.

**Illustrations:** Blom 1996, 1998; Lawton 1971.

**Geographic subdivisions:** CaR, NW, SN, SNE, SW.

**Selected specimens:** Inyo Co.: trail to Tyee Lakes below South Lake, Inyo National Forest, *Shevock 15280* (determined by Blom); Lake Co.: West Peak Summit, Snow Mountain Wilderness, Mendocino National Forest, *Toren & Dearing 7505* (CAS); Mono Co.: June Lake Loop, Highway 158 above Silver Lake, *Shevock 20043* (determined by Blom); Shasta Co.: north side of Warner Valley below Siford Lakes, Lassen Volcanic National Park, *Showers 2396* (UC); Ventura Co.: above Blue Rock Springs, *Norris 55422*.

***Schistidium maritimum* (Turner ex Scott) Bruch & Schimper** [Grimmiaceae]

**Literature:** As *Grimmia maritima* Crum and Anderson 1981; Koch 1950a; Lawton 1971.

**Illustrations:** Blom 1998; Bremer 1980a; Crum and Anderson 1981; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** NW.

**Selected specimens:** Humboldt Co.: College Cove, Trinidad State Beach, *Silver 902* (UC) and *Norris 47755*, Trinidad Head, *Wolski 2319* (UC) and near Albalone Point, Patricks Point State Park, *Norris 23889*; Mendocino Co.: Russian Gulch State Park, *Koch 3764* (UC).

***Schistidium occidentale* (E. Lawton) Churchill in Funk & D. R. Brooks** [Grimmiaceae]

**Literature:** As *Grimmia occidentalis* Lawton 1967b, 1971; Showers 1982; Toren 1977; Toren and Sigal 1974.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** SN, SNE, SW.

**Selected specimens:** Alpine Co.: Highway 4 about 2 miles north of Ebbetts Pass, Toiyabe National Forest, *Shevock 19968* (determined by Blom); Fresno Co.: trail between Crown Creek and Blue Canyon, Kings Canyon National Park, *Shevock & York 14147* (determined by Blom); Inyo Co.: Little Cottonwood Creek near Horseshoe Meadows, Golden Trout Wilderness, *Shevock, Lin, & Chen 17747* (determined by Blom); Los Angeles Co.: Dorr Canyon, Angeles Crest Highway, Angeles National Forest, *Shevock 21659* (determined by Ochyra); Tulare Co.: Nathan's Camp near Rock Creek Ranger Station, Sequoia National Park, *Shevock 18514* (determined by Blom); Tuolumne Co.: Deadman Creek adjacent to Highway 108, 3.5 miles west of Sonora Pass, Stanislaus National Forest, *Shevock 18596* (determined by Blom).

**\**Schistidium platyphyllum* (Mitten) Persson in Persson & Gjaerev** [Grimmiaceae]

**Illustrations:** Blom 1998.

**Geographic subdivisions:** SN.

**Selected specimens:** Fresno Co.: Cedar Grove just west of Zumwalt Meadows along South Fork Kings River, Kings Canyon National Park, *Shevock 17472* (determined by Blom).

***Schistidium rivulare* (Bridel) Podpěra**  
[Grimmiaceae]

**Literature:** As *Grimmia alpicola* var. *rivularis* Crum and Anderson 1981; Flowers 1973; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Spjut 1971.

**Illustrations:** Blom 1998; Bremer 1980a; Crum and Anderson 1981; Flowers 1973; Ignatov and Cao 1994; Ignatov and Ignatova 2003; Ireland 1982; Koponen et al. 1995; Lawton 1971; Ochyra 1998a; Sharp et al. 1994.

**Geographic subdivisions:** CaR, NW, SN, SNE.

**Selected specimens:** Fresno Co.: LeConte Canyon, Middle Fork Kings River, Kings Canyon National Park, *Shevock & Haultain 18647* (determined by Blom); Lake Co.: Eel River west of Copper Butte and Snow Mountain Wilderness, Mendocino National Forest, *Toren & Bourell 5164a* (CAS); Mono Co.: Leavitt Creek adjacent to Highway 108, 4.5 miles east of Sonora Pass, Toiyabe National Forest, *Shevock 18603* (determined by Blom); Siskiyou Co.: Big Carmen Lake about 6.5 miles east of Calahan, Klamath National Forest, *Spjut, Norris, & J. Koponen 6282*; Tehama Co.: Mill Creek about 0.5 mile beyond Mill Creek Campground, *Norris 55937*; Tulare Co.: Marble Fork Kaweah River at Little Deer Creek off of Crystal Cave Road, Sequoia National Park, *Shevock 15637* (determined by Blom); Tuolumne Co.: Tioga Road 0.5 mile west of Siesta Lake, Yosemite National Park, *Shevock 19501* (determined by Blom).

***Schistidium tenerum* (J. E. Zetterstedt) Nyholm**  
[Grimmiaceae]

**Literature:** As *Grimmia tenera* McGrew 1976.

**Illustrations:** Blom 1996, 1998; Bremer 1980b.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Humboldt Co.: junction of Red Mountain and South Red Mountain Road, *Norris* 56441; Siskiyou Co.: near Bear Lake, *Norris* 24207; Tulare Co.: slopes above Ranger Lakes toward Silliman Pass, Kings Canyon National Park, *Norris* 46587.

***Schizymerium shevockii* A. J. Shaw**  
[Meliaceae]

**Literature:** Shaw 2000.

**Illustrations:** Shaw 2000.

**Geographic subdivisions:** SN, SW.

**Selected specimens:** Fresno Co.: Highway 180 near Yucca Point, Sequoia National Forest, *Shevock* 12468, Boyden Cave, Sequoia National Forest, *Shaw* 9884 (DUKE), trail between Boulder Creek and Boyden Cave, Monarch Wilderness, Sequoia National Forest, *Shevock & York* 13643 (determined by Shaw) and 10 km north of the intersection of Forest Road 9 and Trimmer Balch Camp Road south of Haslett Basin, Sierra National Forest, *Shaw* 9905 & 9907 (DUKE); Mariposa Co.: Highway 140 along Merced River at Slate Creek Bridge, 1 mile west of Sierra National Forest boundary on BLM land, *Shevock* 20467 (confirmed by Shaw); Riverside Co.: San Diego State University Santa Margarita River Ecological Reserve between Temecula and Fallbrook, *Shevock* 20506 (determined by Shaw); Tulare Co.: County Road M-99 near Hospital Flat Campground, Kern River Canyon, Sequoia National Forest, *Shevock* 17038 (determined by Shaw).

***Scleropodium californicum* (Lesquereux)**  
**Kindberg** [Brachytheciaceae]

**Literature:** Harthill et al. 1979; Howe 1896; Kellman 2003; Koch 1950a; McCleary 1972; Mills-paugh and Nuttall 1923; Sayre 1940; Shevock and Toren 2001; Steere 1954; Thomson and Ketchledge 1958; Whitmore and Sommers 1999; Yurky 1990, 1995. As *Brachythecium californicum* Kingman 1912. As *Hypnum californicum* Brandegee 1891; Lesquereux 1868; Watson 1880.

**Illustrations:** Sharp et al. 1994.

**Geographic subdivisions:** CW, NW, SN.

**Selected specimens:** Humboldt Co.: Eel River about 3 miles north of the start of Avenue of the Giants, *Norris* 72153; Lake Co.: base of Mt. Konocti above Clear Lake at Soda Bay, *Toren & Shevock* 8536 (CAS); Marin Co.: trail near Mud Lake, Point Reyes National Seashore, *Norris* 71824; Mariposa Co.: Summit Road about 2 miles north of Fish Camp, Sierra National Forest, *Norris* 85367; Mendocino Co.: Highway 101 at Cummings turn-off, *Norris* 21616; Monterey Co.: Arroyo Seco Creek about 4 miles west of Greenfield, *Norris* 48501; San Francisco Co.: Alcatraz Island, Golden Gate National Recreation Area, *Shevock, Toren, & Thomas* 20214; Santa Cruz Co.: Majors Creek at Highway 1, *Kellman* 1091 (CAS).

***Scleropodium cespitosum* (Wilson ex C. Müller Hal.) L. Koch** [Brachytheciaceae]

**Literature:** Harthill et al. 1979; Holmberg 1969; Jamieson 1969; Kellman 2003; Koch 1950a, 1951c; Koch and Ikenberry 1954; Lawton 1971; McCleary 1972; Mishler 1978; Shevock and Toren 2001; Spjut 1971; Thomson and Ketchledge 1958; Toren 1977; Yurky 1990, 1995. As *Hypnum caespitosum* Lesquereux 1868; Watson 1880. As *Scleropodium apocladum* Kingman 1912; Koch 1950a; Koch and Ikenberry 1954; McCleary 1972. As *Scleropodium caespitosum* Bradshaw 1926; Steere 1954.

**Illustrations:** Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, CW, GV, NW, SN.

**Selected specimens:** Butte Co.: Big Chico Creek about 3 miles southwest of upper boundary of Bidwell Park, *Norris* 70076; Kern Co.: Highway 178 at Democrat Hot Springs, Kern River Canyon, Sequoia National Forest, *Norris & Piippo* 82208; Mendocino Co.: Greenwood Ridge Road at Navarro River near entrance to Hendy Woods State Park, *Norris* 53106; San Luis Obispo Co.: Lynch Canyon Road about 3 miles from Interlake Road south of San Antonio Reservoir, *Norris* 85156; Santa Cruz Co.: Harvey West Park, City of Santa Cruz, *Kellman* 1238 (CAS); Sonoma Co.: Austin Creek near intersection with Russian River, *Norris* 53139; Stanislaus Co.: sandstone cliff about 2 miles east of Oakdale, *Koch* 1471 (UC).

***Scleropodium colpophyllum* (Sullivant) Grout**  
[Brachytheciaceae]

**Literature:** Kellman 2003; Koch 1950a; Moxley 1928; Shevock and Toren 2001; Steere 1954. As *Eurhynchium colpophyllum* Bradshaw 1926; Howe 1897. As *Hypnum colpophyllum* Watson 1880. As *Scleropodium touretii* var. *colpophyllum* Holmberg 1969; Jamieson 1969; Lawton 1971; Long 1978; Spjut 1971; Toren 1977; Yurky 1990, 1995.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CW, NW, SN, CW.

**Selected specimens:** Fresno Co.: Mist Falls Trail near Bubbs Creek junction, South Fork Kings River, Kings Canyon National Park, *Shevock & York* 14467; Humboldt Co.: about 1 mile east of Albee Creek Campground, Humboldt Redwoods State Park, *Norris* 56271; Placer Co.: Drum Forebay Road about 1 mile north of Interstate 80, *Norris* 81988; Riverside Co.: North Fork San Jacinto River near Seven Pines Trail, San Jacinto State Park, *Harpel* 1111 (pers. herb.); Santa Cruz Co.: Highway 8 near San Lorenzo Park north of Boulder Creek, *Norris & Piippo* 82260; Trinity Co.: Corral Bottom Road about 1.5 miles from Big Bar, *Norris* 21038.

***Scleropodium julaceum* E. Lawton**  
[Brachytheciaceae]

**Literature:** Harthill et al. 1979; Kellman 2003; Lawton 1967; Long 1978; Shevock and Toren 2001; Thomson and Ketchledge 1958; Toren 1977; Yurky 1990.



**Illustrations:** Lawton 1967a.

**Geographic subdivisions:** CW, SW.

**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris* 87193; Lake Co.: north shore of Lake Pillsbury at Pogie Point, Mendocino National Forest, *Toren & Bourell* 5045 (CAS); Los Angeles Co.: Sepulveda Canyon, *MacFadden* 18595 (LAM); Monterey Co.: Arroyo Seco Creek about 4 miles west of Greenfield, *Norris* 48505; San Benito Co.: Caves Trail, Pinnacles National Monument, *R. Gantt s.n.* (UC); San Luis Obispo Co.: Highway 166 at Clear Creek, Los Padres National Forest, *Norris* 80666; Santa Cruz Co.: Quail Hollow Ranch County Park, *Kellman* 201 (CAS).

***Scleropodium obtusifolium* (Mitten) Kindberg in Macoun** [Brachytheciaceae]

**Literature:** Bradshaw 1926; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Howe 1896; Jamieson 1969; Kellman 2003; Kingman 1912; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Long 1978; Mishler 1978; Shevock and Toren 2001; Showers 1982; Spjut 1971; Toren 1977; Yurky 1995.

**Illustrations:** Flowers 1973; Lawton 1971.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SNE, SW.

**Selected specimens:** Fresno Co.: Grizzly Falls along Highway 180, South Fork Kings River, Sequoia National Forest, *Shevock* 12433; Lake Co.: Upper Nye Camp just north of Snow Mountain Wilderness, Mendocino National Forest, *Shevock, Bourell, & Toren* 15833; Modoc Co.: Crowder Flat Road about 2 miles south of Oregon border, *Norris* 79145; Santa Barbara Co.: about 1 mile south of Bates Canyon Campground, *Norris* 55376; Riverside Co.: Gardner Valley, San Bernardino National Forest, *Harpel* 1954 (pers. herb.) [confirmed by Schofield]; Shasta Co.: Fall Creek Road at Dekkas Rock above Shasta Lake, Shasta-Trinity National Forest, *Norris* 84833.

***Scleropodium touretii* (Bridel) L. Koch** [Brachytheciaceae]

**Literature:** Bourell 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Kellman 2003; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Long 1978; McCleary 1972; Mishler 1978; Shevock and Toren 2001; Sigal 1975; Smith 1970; Spjut 1971; Toren 1977; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Hypnum illecebrum* Brandegee 1891; Lesquereux 1868; Watson 1880. As *Scleropodium illecebrum* Kingman 1912; Millspaugh and Nuttall 1923; Sayre 1940; Steere 1954.

**Illustrations:** Flowers 1973; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CW, NW, SN, SW.

**Selected specimens:** Glenn Co.: Highway 36 at Georgie Dells Road, *Norris* 56061; Humboldt Co.: South Fork Mountain Road about 8 air miles north

of Mad River, Six River National Forest, *Norris* 83883; Riverside Co.: near Ortega Oaks Campground, *Norris* 58148; San Mateo Co.: Spring Creek above reservoir, Filoli Center just north of Woodside, *Whittemore & Noyes* 4386 (UC); Tulare Co.: Marble Falls trail above Potwisha Campground, Marble Fork Kaweah River, Sequoia National Park, *Shevock* 12963.

***Scopelophila cataractae* (Mitten) Brotherus** [Pottiaceae]

**Literature:** Shaw and Anderson 1988; Steen 1986; Zander 1967.

**Illustrations:** Allen 2002; Crum and Anderson 1981; Sharp et al. 1994; Zander 1967, 1993.

**Geographic subdivisions:** SN.

**Selected specimens:** Calaveras Co.: Old Discovery Mine at Copperopolis, *Steen* 810605-2 (CINC, DUKE, UC).

***Scouleria aquatica* W. J. Hooker in Drummond** [Scouleriaceae]

**Literature:** Bourell 1981; Churchill 1985; Flowers 1973; Holmberg 1969; Howe 1897; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Showers 1982; Spjut 1971; Yurky 1990, 1995. As *Grimmia scouleri* Lesquereux 1868; Lesquereux and James 1884; Watson 1880.

**Illustrations:** Brotherus 1924–1925; Flowers 1973; Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW, SN, SNE.

**Selected specimens:** Amador Co.: below Devil's Lake Trailhead northeast of Bear River Reservoir, Eldorado National Forest, *Norris* 82699; Humboldt Co.: South Fork Tish-Tang-a-Tang Creek east of Hoopa, *Norris & Whittemore* 52390; Inyo Co.: Big Pine Creek adjacent to Glacier Lodge Road, 0.4 miles below Sage Flat Campground, Inyo National Forest, *Shevock* 15323; Lake Co.: tributary of Stony Creek, west slope of Crockett Peak, Snow Mountain Wilderness, Mendocino National Forest, *Toren & Dearing* 7591 (CAS); Marin Co.: Mt. Tamalpais State Park, *J.T. Howell s.n.* (CAS); Mendocino Co.: South Fork Eel River, Branscomb Nature Conservancy Preserve north of Branscomb, *Norris* 47219; Siskiyou Co.: Klamath River at Ishi Pishi Bridge near Somes Bar, Klamath National Forest, *Norris* 12253.

***Scouleria marginata* E. Britton** [Scouleriaceae]

**Literature:** Christy and Wagner 1996; Churchill 1985; Howe 1896; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Spjut 1971.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Del Norte Co.: Smith River at Highway 199 about 9 miles east of junction with Highway 101, Six Rivers National Forest, *Norris* 85006; El Dorado Co.: South Fork American River at Bridal Veil Falls Campground, Eldorado National Forest, *Norris* 58365; Fresno Co.: South Fork

Kings River at Boulder Creek near Boyden Cave, Sequoia National Forest, *Shevock & York 14508*; Mariposa Co.: Merced River at El Portal, Yosemite National Park, *Norris & Shevock 100241*; Plumas Co.: Highway 89 about 3 miles from Crescent Mills, Plumas National Forest, *Norris 69966*; Siskiyou Co.: Salmon River about 4 miles west of Cecilville, Klamath National Forest, *Norris 10060*; Tulare Co.: North Fork Kern River about 1.5 miles above junction with Little Kern River, Golden Trout Wilderness, Sequoia National Forest, *Shevock 16522*.

***Sematophyllum adnatum* (Michaux) E. Britton**  
[Sematophyllaceae]

**Literature:** Shevock and Toren 2001.

**Illustrations:** Buck 1998; Sharp et al. 1994.

**Geographic subdivisions:** CW.

**Selected specimens:** San Francisco Co.: Mt. Davidson, San Francisco, *Shevock 18929*.

**\**Sphagnum bartlettianum* Warnstorf**  
[Sphagnaceae]

**Illustrations:** Crum and Anderson 1981.

**Geographic subdivisions:** NW.

**Selected specimens:** Mendocino Co.: Pygmy Forest just east of Mendocino. *Andrus 7421* (NY) [determined by Andrus].

***Sphagnum capillifolium* (Ehrhart) Hedwig**  
[Sphagnaceae]

**Literature:** Crum and Anderson 1981; Koch 1950a. As *Sphagnum acutifolium* Lesquereux 1868; Watson 1880.

**Illustrations:** Crum 1984; Crum and Anderson 1981; Ignatov and Ignatova 2003; Smith 1978.

**Geographic subdivisions:** NW, SNE.

**Selected specimens:** Humboldt Co.: Big Lagoon County Park, 13 miles south of Orick, *Silver 899* (UC); Mono Co.: Tioga Junction Campground off of Highway 120, Inyo National Forest, *Norris 48366*.

***Sphagnum compactum* Lamarck & A. P. de Candolle** [Sphagnaceae]

**Literature:** Crum and Anderson 1981; Warnstorf 1890; Watson 1880. As *Sphagnum rigidum* var. *compactum* Lesquereux 1868.

**Illustrations:** Crum 1984; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Smith 1978.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Fresno Co.: Marie Lake, *Wheeler 6553* (CAS, DUKE, UC) [determined by Shaw] and above Ranger Lakes near Silliman Pass, Kings Canyon National Park, *Norris 46599* (NY) [determined by Andrus]; Siskiyou Co.: above Big Boulder Lake west of Carrville, Klamath National Forest, *Norris & Streimann 74838*.

**\**Sphagnum contortum* Schultz** [Sphagnaceae]

**Illustrations:** Ignatov and Ignatova 2003; Smith 1978.

**Geographic subdivisions:** NW.

**Selected specimens:** Mendocino Co.: Pygmy Cypress Forest along Airport Road about 1 mile east of Highway 1 south of Fort Bragg, *Norris 73156*; Siskiyou Co.: Klamath National Forest, near Russian Lake, *McGrew 598* (UC), Lower Russian Lake, *McGrew 304* (UC), Waterdog Lake, *McGrew 470* (UC) [determined by Andrus].

***Sphagnum fimbriatum* Wilson & W. J. Hooker**  
[Sphagnaceae]

**Literature:** Crum and Anderson 1981; Koch 1950a; Lesquereux 1868; Lesquereux and James 1884; Showers 1982; Warnstorf 1890; Watson 1880.

**Illustrations:** Crum 1984; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Smith 1978.

**Geographic subdivisions:** NW; SN, SNE.

**Selected specimens:** Fresno Co.: meadow at base of Maxson Dome, John Muir Wilderness, Sierra National Forest, *Shevock 17442* (determined by Crum) and near Camp 171, eastern base of Mt. Brewer, Kings Canyon National Park, *Brewer 2810* (MO, UC); Humboldt Co.: near McClellan Mountain about 5 miles east of Bridgeville, *Norris 45815, 45816, & 45821* (determined by Andrus); Mono Co.: Cinnabar Canyon north of road to Bodie, *Messick 1539* (UC) [determined by Andrus].

***Sphagnum fuscum* (W. P. Schimper) Klinggräff**  
[Sphagnaceae]

**Literature:** Crum and Anderson 1981; Showers 1982.

**Illustrations:** Crum 1984; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Smith 1978.

**Geographic subdivisions:** NW, SN, SNE.

**Selected specimens:** Fresno Co.: just above first Dinkey Lake, Dinkey Lakes Wilderness, Sierra National Forest, *Shevock & York 13903* (determined by Crum); Glenn Co.: Keller Lake, west slope of Black Butte, Mendocino National Forest, *Toren & Nilles 98-218* (CAS) [determined by Crum]; Mono Co.: Tioga Junction Campground, Highway 120, Inyo National Forest, *Norris 48362* (determined by Andrus); Tulare Co.: Oriole Lake, Sequoia National Park, *Shevock, Norris, & Barahona 13175* (determined by Crum).

**\**Sphagnum girgensohnii* Russow** [Sphagnaceae]

**Illustrations:** Crum 1984; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Smith 1978.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Inyo Co.: near Bishop Lake, John Muir Wilderness, Inyo National Forest, *Shevock & Haultain 18616* (determined by Crum) and Treasure Lake at headwaters of Rock Creek, John Muir Wilderness, Inyo National Forest, *Norris 71555*; Tulare Co.: Moose Lake, Sequoia National



Park, *Munneke, Evens & Roll s.n.* (CAS, DUKE) [determined by Shaw].

*Sphagnum henryense* Warnstorf [Sphagnaceae]

**Literature:** Andrus 1980.

**Illustrations:** Crum 1980, 1984; Crum and Anderson 1981.

**Geographic subdivisions:** NW.

**Selected specimens:** Del Norte Co.: Panther Flats Campground, Highway 199, *Thiers 37513* (SFSU) [determined by Andrus]; Humboldt Co.: near Patrick's Point State Park, *Bourell 1189* (CAS) and Bald Mountain between High Prairie and Snow Camp, *Tracy 4608* (UC) [determined by Andrus]; Mendocino Co.: along Albion-Little River Road south of Mendocino County Airport Landing Strip, *Bourell 3614* (CAS) and 3 miles east of Fort Bragg, *Mason s.n.* (UC) [determined by Andrus].

*\*Sphagnum inundatum* Russow [Sphagnaceae]

**Illustrations:** Ignatov and Ignatova 2003; Smith 1978.

**Geographic subdivisions:** SN.

**Selected specimens:** Fresno Co.: tributary of Kaiser Creek east of Idaho Lake, Kaiser Wilderness, Sierra National Forest, *Shevock 21002* (determined by Shaw); Madera Co.: Sky Ranch Road, 0.3 mile from Cold Springs Saddle, Sierra National Forest, *Shevock & Kellman 19661* (determined by Shaw); Mariposa Co.: Yosemite Creek below Grant Lakes, Yosemite National Park, *Shevock & Erter 19536* (determined by Shaw); Tulare Co.: meadow east of Sirretta Ridge and Round Meadow, Sequoia National Forest, *Laeger 300 & 301* (CAS, DUKE) [determined by Shaw].

*Sphagnum lescurii* Sullivant in Gray [Sphagnaceae]

**Literature:** As *Sphagnum auriculatum* Lesquereux 1868.

**Illustrations:** No illustration located for this species.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Fresno Co.: between Wet Meadows and Spanish Lake, John Muir Wilderness, Sierra National Forest, *Shevock 14162*; Inyo Co.: Rock Creek, Inyo National Forest, *Shevock 13812*; Tulare Co.: Deep Meadow about 4 miles north of Quaking Aspen, Sequoia National Forest, *Shevock 17491* (determined by Crum).

*Sphagnum magellanicum* Bridel [Sphagnaceae]

**Literature:** Koch 1950a.

**Illustrations:** Crum 1984; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** SN.

**Selected specimens:** Fresno Co.: Swamp Meadow below Swamp Lake, Sierra National Forest, *York 2020* (CAS) [determined by Crum]; undetermined county: *James 71* (NY) [determined by Andrus].

*Sphagnum mendocinum* Sullivant [Sphagnaceae]

**Literature:** Koch 1950a; Lesquereux and James 1884; Warnstorf 1890; Watson 1880.

**Illustrations:** Crum 1984.

**Geographic subdivisions:** NW.

**Selected specimens:** Humboldt Co.: Patrick's Point, *Tracy 4363* (UC) and shore of Lake Prairie, *Norris 50412*; Mendocino Co.: Albion-Little River Road south of Mendocino County Airport Landing Strip, *Bourell 3616* (CAS), County Road 409, 2.5 miles east of Highway 1, Jackson State Forest, *Smith 84* (UC) and Pygmy Forest along Summers Road east of Fort Bragg, *Norris 23444* and Pygmy Cypress Forest, *Andrus 7416* (MO) [determined by Andrus].

*Sphagnum palustre* Linnaeus [Sphagnaceae]

**Literature:** Crum and Anderson 1981; Koch 1950a. As *Sphagnum cymbifolium* Lesquereux 1868.

**Illustrations:** Crum 1984; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** NW.

**Selected specimens:** Del Norte Co.: Panther Flats Campground, Highway 199, *Thiers 37568* (SFSU) [determined by Andrus]; Humboldt Co.: Big Lagoon, *Tracy 6770* (MO, UC) and *Norris 46066*; Mendocino Co.: Albion-Little River Road south of Mendocino County Airport landing airstrip, *Bourell 2077* (CAS) and Pygmy Cypress Forest along Summers Road east of Fort Bragg, *Norris 23441* and Pygmy Cypress Forest, *Andrus 7415* (MO) [determined by Andrus].

*\*Sphagnum papillosum* Lindberg [Sphagnaceae]

**Illustrations:** Crum 1984; Ignatov and Ignatova 2003; Ireland 1982; Smith 1978.

**Geographic subdivisions:** NW.

**Selected specimens:** Mendocino Co.: about 2.5 miles east of Noyo, *Bacigalupi 6505* (MO, UC), Pygmy Cypress Forest about 5 miles east of Albion, *Norris 11798* and Summers Road east of Fort Bragg, *Norris 23460*, near Fort Bragg, Mitchell Creek, *Thiers 39464* (SFSU) (determined by Andrus) and Pygmy Cypress Forest Preserve, Jackson State Forest, *Showers 3260* (SFSU) [determined by Andrus; Crum].

*\*Sphagnum platyphyllum* (Lindberg) Warnstorf [Sphagnaceae]

**Illustrations:** Ignatov and Ignatova 2003; Ireland 1982; Smith 1978.

**Geographic subdivisions:** NW.

**Selected specimens:** Mendocino Co.: CA occurrence not specified, *Bolander s.n.* (UC) [determined by Andrus]; undetermined county: *James 70* (NY) [determined by Andrus].

**\**Sphagnum quinquefarium* (Lindberg in Braithwaite) Warnstorf** [Sphagnaceae]

**Illustrations:** Crum 1984; Crum and Snider 1977; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Smith 1978.

**Geographic subdivisions:** NW.

**Selected specimens:** Mendocino Co.: Pygmy Cypress Forest, 0.5 mile south of Casper east of Highway 1, *Tavares & Sharsmith 729 & 731* (UC), County Road 409, about 1 mile east of Highway 1 south of Fort Bragg, *Norris 11755* (determined by Andrus).

**\**Sphagnum russowii* Warnstorf** [Sphagnaceae]

**Illustrations:** Crum 1984; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Smith 1978.

**Geographic subdivisions:** NW, SN, SNE.

**Selected specimens:** Fresno Co.: headwaters of Blue Canyon Creek, Kings Canyon National Park, *York 1478* (CAS) [determined by Crum]; Mendocino Co.: Pygmy Cypress Forest along Summers Road east of Fort Bragg, *Norris 23461* (determined by Andrus); Mono Co.: one mile east of Tioga Pass, Inyo National Forest, *J.T. Howell s.n.* (CAS) and *Norris 48364* (determined by Andrus); Tuolumne Co.: Cathedral Lake, Yosemite National Park, *Sharsmith 2196* (UC) [determined by Andrus].

***Sphagnum squarrosum* Crome in Hoppe** [Sphagnaceae]

**Literature:** Flowers 1973; Crum and Anderson 1981; Koch 1950a; Lesquereux 1868; Lesquereux and James 1884; Showers 1982; Warnstorf 1890.

**Illustrations:** Crum 1984; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** NW, SN, SNE.

**Selected specimens:** El Dorado Co.: Grass Lake along Highway 89 west of Luther Pass, Eldorado National Forest, *Norris 71320*; Humboldt Co.: Mill Creek off of Azalea Avenue, McKinleyville, *DeMartini s.n.* (UC) [determined by Andrus]; Mariposa Co.: in spray of Vernal Falls, Merced River, Yosemite National Park, *Eastwood 339* (CAS, MO) [determined by Andrus]; Mono Co.: Junction Campground at road junction to Saddlebag Lake, Inyo National Forest, *Shevock 13781 & 13783* (determined by Crum); Siskiyou Co.: Mud Spring, Middle Creek, *Wheeler 3042* (CAS, DUKE, UC) [determined by Shaw]; Tulare Co.: Ranger Lakes below Silliman Pass, Kings Canyon National Park, *Norris 46599*; Tuolumne Co.: Mt. Dana, Yosemite National Park, *Bolander s.n.* (UC) [determined by Andrus].

***Sphagnum strictum* Sullivant** [Sphagnaceae]

**Literature:** Crum 1997.

**Illustrations:** Crum 1984; Crum and Anderson 1981; Ireland 1982; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** SN.

**Selected specimens:** Fresno Co.: outlet of first Dinkey Lake, Dinkey Lakes Wilderness, Sierra National Forest, *Shevock & York 13885* (determined by Crum).

***Sphagnum subnitens* Russow & Warnstorf** [Sphagnaceae]

**Literature:** Crum and Anderson 1981. As *Sphagnum plumulosum* Koch 1950a.

**Illustrations:** Crum 1984; Crum and Anderson 1981; Ignatov and Ignatova 2003; Smith 1978.

**Geographic subdivisions:** NW, SN.

**Selected specimens:** Fresno Co.: just north of Potter Pass, Kaiser Wilderness, Sierra National Forest, *Shevock 21025* and near Charlotte Lake, Kings Canyon National Park, *Aken & Munnecke s.n.* (CAS, DUKE) [determined by Shaw]; Humboldt Co.: Big Lagoon County Park, *Norris 48315* (determined by Andrus) and Lake Prairie, *Norris 50411*; undetermined county: *Bolander 211* (NY) [determined by Andrus; Warnstorf].

***Sphagnum subsecundum* Nees in Sturm** [Sphagnaceae]

**Literature:** Crum and Anderson 1981; Koch 1950a; Lesquereux 1868; McGrew 1976; Showers 1982; Watson 1880.

**Illustrations:** Crum 1984; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Smith 1978.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** El Dorado Co.: Grass Lake near Luther Pass, Eldorado National Forest, *Bourell 674* (CAS) [determined by Andrus]; Humboldt Co.: Snow Camp Lake, *Norris 50380*; Mariposa Co.: Glacier Point Road at Summit Meadow west of Bridalveil Creek, Yosemite National Park, *Shevock & Norris 20184* (determined by Shaw); Siskiyou Co.: Sugar Lake west of Callahan, Klamath National Forest, *Norris 57375*; Tulare Co.: below Heather Lake, Sequoia National Park, *Shevock 16496* (determined by Crum); Tuolumne Co.: Tiltill Valley, Rancheria Mountain Trail above Hetch Hetchy, Yosemite National Park, *Mason 12067* (UC) [determined by Andrus].

***Sphagnum teres* (W. P. Schimper) Ångström in C. J. Hartman** [Sphagnaceae]

**Literature:** Crum and Anderson 1981; Koch 1949a, 1950a; Showers 1982. As *Sphagnum squarrosum* Lesquereux 1868.

**Illustrations:** Crum 1984; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Smith 1978.

**Geographic subdivisions:** CaR, SN.

**Selected specimens:** El Dorado Co.: Grass Lake south of Lake Tahoe along Highway 89, Eldorado National Forest, *Stebbins 2315* (UC), *Thorne & Tilforth 39307* (MO, UC), *Norris 71310* and *Andrus 3031 & 7429* (MO) [determined by Andrus]; Nevada Co.: Willow Spring, 2.5 miles west of west end Bowman Lake and 1 mile south of road to



Graniteville, Tahoe National Forest, *Thorne, De-Buhr, & Tilforth 42276* (MO); Placer Co.: Osgood Swamp, *Andrus 7434* (MO, NY); Plumas Co.: Willow Lake Botanical Area, Lassen National Forest, *Shevock & Corbin 12229* and *Austin 370* (UC) [determined by Andrus]; Siskiyou Co.: south side of Mt. Shasta, *H. E. Brown 659* (NY) [determined by Andrus].

***Sphagnum warnstorffii* Russow** [Sphagnaceae]

**Literature:** Andrus 1979.

**Illustrations:** Crum 1984; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982.

**Geographic subdivisions:** SN.

**Selected specimens:** Fresno Co.: near Bench Lake, Kings Canyon National Park, *Raven s.n.* (CAS, MO) [determined by Blomquist].

***Steerecleus serrulatus* (Hedwig) H. Robinson**  
[Brachytheciaceae]

**Literature:** As *Eurhynchium serrulatum* Spjut 1971.

**Illustrations:** As *Rhynchostegium serrulatum* Buck 1998; Sharp et al. 1994.

**Geographic subdivisions:** NW, SW.

**Selected specimens:** Humboldt Co.: Highway 96 at milepost 18.71 about 7 miles north of Hoopa, *Norris 22290*; Lake Co.: Bartlett Springs Road, *Carmiggelt 52* (UC); Los Angeles Co.: Rubio Canyon, above Pasadena, Angeles National Forest, *McClatchie s.n.* (UC); Siskiyou Co.: about 1 mile west of Elk Lick, *Norris 23276* and 4 miles west of Etna on road to Sawyers Bar, *Norris & Hermann 22667*; Trinity Co.: near Brown's Meadow, *Norris 23170*.

***Stegonia hyalinotricha* (Cardot & Thériot)**  
**Zander** [Pottiaceae]

**Literature:** As *Phascum hyalinotrichum* Cardot and Thériot 1904; Harthill et al. 1979; Koch 1950a; McCleary 1972; Stark and Whittemore 1992; Steere 1954.

**Illustrations:** Sharp et al. 1994; Zander 1993.

**Geographic subdivisions:** CW, GV, MP, SN, SNE, SW.

**Selected specimens:** Inyo Co.: Big Pine Volcanic Field, BLM Crater Mountain Area of Critical Environmental Concern, west of Highway 395, *Shevock & Newberry 16951*; Kern Co.: Highway 65 near Poso Creek, *Shevock & York 16905* and Highway 178, about 1 mile east of first dam, Kern River Canyon, Sequoia National Forest, *Norris 80776*; Lassen Co.: Highway 138, 3 miles north of Susanville, *Norris 52786 & 52791*, hillside above Johnsondale Dump Road southeast of Susanville, *Norris 52831 & 52832*; Riverside Co.: Santa Margarita Ecological Reserve, *Kellman 1394* (CAS) [determined by Stark]; San Diego Co.: 0.25 mile west of San Vicente Reservoir, 3 miles north of Lakeside, *Stark 578* (MO) and adjacent to and west of Henshaw Lake, Cleveland National Forest, *Stark 636a*

(MO); San Luis Obispo Co.: Nacimiento River at Twin Bridges, Camp Roberts Military Reservation, *Norris 100960*; Santa Barbara Co.: Green Mountain, San Miguel Island, Channel Islands National Park, *Wheeler 8031* (CAS, UC).

**\**Stegonia latifolia* (Schwägrichen in Schultes)**  
**Venturi ex Brotherus** [Pottiaceae]

**Illustrations:** Ochyra 1998a; Zander 1993. As *Pottia latifolia* Lawton 1971.

**Geographic subdivisions:** CaR, MP, SN.

**Selected specimens:** Fresno Co.: near summit of Dogtooth Peak, Dinkey Lakes Wilderness, Sierra National Forest, *York 1217* (CAS); Lassen Co.: Highway 395 about 3 miles north of Litchfield at milepost 79.7, *Norris 22596*; Tehama Co.: Highway 36, 56 miles east of Shasta County line, *Norris 8745*.

***Stegonia pilifera* (Bridel) H. Crum & L. E. Anderson** [Pottiaceae]

**Literature:** As *Stegonia latifolia* var. *pilifera* Crum 1957.

**Illustrations:** Flowers 1973. As *Pottia latifolia* var. *pilifera* Lawton 1971.

**Geographic subdivisions:** MP, SN, SNE.

**Selected specimens:** Fresno Co.: Mt. Barnard, Sierra National Forest, *Raven s.n.* (CAN, CAS) [determined by Crum]; Lassen Co.: Highway 395 about 3 miles north of Litchfield at milepost 79.7, *Norris 22597*; Modoc Co.: about 9 miles east of Cedarville, *Norris 47445*; Mono Co.: White Mountain Peak, White Mountains, Inyo National Forest, *York 2453* (CAS).

***Straminergon stramineum* (Dickson ex Bridel)**  
**Hedenäs** [Campyliaceae]

**Literature:** As *Calliergon stramineum* Koch 1949a, 1950a, 1958; Showers 1982.

**Illustrations:** Flowers 1973; Hedenäs 1993a, 2003; Ireland 1982; Kanda 1978; Lawton 1971; Smith 1978.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** El Dorado Co.: Grass Lake along Highway 89, Eldorado National Forest, *Norris 79044*; Fresno Co.: between Marvin Pass and Mitchell Peak trail junction, Jennie Lakes Wilderness, Sequoia National Forest, *Shevock 14558*; Inyo Co.: Treasure Lake, John Muir Wilderness, Inyo National Forest, *Norris 71563*, Hearst Lake Trail from Onion Valley, *Norris 46784* and Robinson Lake, Inyo National Forest, *Norris 46644*.

***Syntrichia amplexa* (Lesquereux) Zander**  
[Pottiaceae]

**Literature:** Kellman 2003; Shevock and Toren 2001. As *Barbula amplexa* Brandegees 1891; Lawton 1971; Lesquereux 1868; Watson 1880. As *Tortula amplexa* Harthill et al. 1979; Koch 1950a; Koch and Ikenberry 1954; Toren 1977; Yurky 1990, 1995.

**Illustrations:** Lawton 1971; Smith 1978.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Humboldt Co.: about 1 mile east of Payton Ranch north of Blocksburg, *Norris* 48195; Lake Co.: east of Hell's Peak near Bachelor Valley, *Toren* 1049 (SFSU); Marin Co.: Angel Island State Park, *J.T. Howell s.n.* (CAS); Monterey Co.: Pacific Grove, Monterey, *M. Howe s.n.* (UC); San Francisco Co.: China Beach, Golden Gate National Recreation Area, *Shevock* 19270; Santa Cruz Co.: at beach, Rancho del Oso Division, Big Basin Redwoods State Park, *Kellman* 1214 (CAS); Sonoma Co.: near Petaluma, *Koch* 1319 (UC).

***Syntrichia bartramii* (W. C. Steere in Grout) Zander** [Pottiaceae]

**Literature:** Kellman 2003. As *Tortula bartramii* Harpel 1980a; Harthill et al. 1979; Koch 1950a; Lawton 1971; Long 1978; McGrew 1976; Mishler 1978.

**Illustrations:** Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** CW, DMoj, MP, SNE, SW.

**Selected specimens:** Inyo Co.: Long Lake near Morgan Pass, John Muir Wilderness, Inyo National Forest, *Shevock* 13818 and Rogers Peak near Hummingbird Spring, Death Valley National Park, *York & Davis* 2703 (CAS); Lassen Co.: Highway 395 about 3 miles north of Litchfield at milepost 79.7, *Norris & Hermann* 22598; Riverside Co.: Marion Mountain Campground, San Jacinto Mountains, San Bernardino National Forest, *Harpel* 31 (pers. herb.); San Luis Obispo Co.: Boy Scout Road, Camp Roberts Military Reservation, *Norris* 100903; Santa Cruz Co.: south of Eagle Rock near Bonny Doon, *Kellman* 867 (BUF, CAS) [determined by Zander].

***Syntrichia bolanderi* (Lesquereux & T. P. James) Zander** [Pottiaceae]

**Literature:** Kellman 2003; Shevock and Toren 2001. As *Barbula bolanderi* Bradshaw 1926; Brandegee 1891; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Watson 1880. As *Tortula bolanderi* Harthill et al. 1979; Howe 1896; Koch 1950a, 1951e; Koch and Ikenberry 1954; McCleary 1972; Mishler 1978; Steere 1954; Steere et al. 1954; Toren 1977; Whittemore and Sommers 1999; Yurky 1990, 1995.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CW, NW, SN, SW.

**Selected specimens:** Lake Co.: road to Harbin Springs near Boggs Mountain, *Toren & Dearing* 7282 (CAS); San Luis Obispo Co.: Queen Bee Campground about 1 mile east of La Panza Summit, *Norris* 55177; Santa Cruz Co.: Laurel Road at Highway 17, *Kellman* 2650 (CAS); Sonoma Co.: Russian Gulch Creek about 0.25 mile from Highway 1, *Koch* 3505 (UC); Riverside Co.: South Fork San Jacinto River about 7 miles east of Hemet, *Norris* 58056; Tehama Co.: end of Buckhorn Road, Black Butte Recreation Area, *Norris & Piippo* 82391; Tulare Co.: Wishon Road at Dunn Fire

Trail, Sequoia National Forest, *Norris, Shevock, & Barahona* 87034.

***Syntrichia caninervis* Mitten** [Pottiaceae]

**Literature:** As *Tortula bistratosa* Harpel 1980a; Harthill et al. 1979; Lawton 1971; Long 1978; Toren 1977.

**Illustrations:** Ignatov and Ignatova 2003; Lawton 1971.

**Geographic subdivisions:** DMoj, DSon, MP, NW, SNE.

**Selected specimens:** Inyo Co.: Forest Road 7S01, 0.4 mile from Highway 168 west of Bishop, Inyo National Forest, *Shevock* 15252 and Emigrant Canyon Road at Aguerberry Point Road, Panamint Mountains, Death Valley National Park, *Shevock & Harpel* 19055; Kern Co.: Sand Canyon just off Highway 58, *Shevock* 13236; Lake Co.: Highway 20 east of Highway 53 junction at Grizzly Spring, *Toren* 6821 (CAS) [determined by Mishler]; Lassen Co.: narrow canyon along Amedee Canyon north of Honey Lake, *Norris* 80992; Modoc Co.: about 9 miles east of Cedarville along Highway 299, *Norris* 47460 & 47474; San Bernardino Co.: Granite Mountains, Mojave National Preserve, Mojave Desert, *Norris, Shevock, & Barahona* 87745.

***Syntrichia laevipila* Bridel** [Pottiaceae]

**Literature:** Kellman 2003. As *Barbula laevipila* Lesquereux 1868; Lesquereux and James 1884; Watson 1880. As *Tortula laevipila* Harpel 1980a; Harthill et al. 1979; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; McCleary 1972; Mishler 1978; Spjut 1971; Steere 1954; Steere et al. 1954; Thomson and Ketchledge 1958; Toren 1977; Whittemore and Sommers 1999.

**Illustrations:** Lawton 1971; Smith 1978; Zander 1993.

**Notes:** Dr. Brent Mishler of U.C. Berkeley has pointed out (personal communication) that the California collections labeled as *Syntrichia laevipila* differ in many respects from the type collection of the species (Europe). The California material upon further study may require a different circumscription. This will be addressed in the *Syntrichia* treatment for the Bryophyte Flora North America (BFNA).

**Geographic subdivisions:** CaR, CW, GV, NW, SN, SW.

**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris* 87189; Kern Co.: Bloomfield Ranch adjacent to South Fork Kern River, Kern Plateau, *Shevock* 12126a; Los Angeles Co.: West Fork San Gabriel River, San Gabriel Mountains, Angeles National Forest, *Harpel* 2208 (pers. herb.); Mendocino Co.: Highway 101 at Cummings turnoff, *Norris* 21631; Modoc Co.: near Post Canyon north of Adin, *Norris* 47410; San Diego Co.: about 1 mile north of Cuyamaca State Park Headquarters, *Norris* 50716; Shasta Co.: Highway 299 at Crystal Creek, Whiskeytown National Recreation Area, *Norris & Hillyard* 105423;



Sutter Co.: Philip Road near junction with Fiddyment Road northwest of Roseville, *Norris* 103673 & 103796.

**\**Syntrichia laevipila* Bridel var. *meridionalis* (W.P. Schimper) Juratzka** [Pottiaceae]

**Illustrations:** Kellman 2003; As *Tortula laevipila* var. *meridionalis* Lawton 1971.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Lake Co.: Middletown City Park on valley oak, *Toren* 7349 (CAS) and east shore Clear Lake at town of Nice, *Toren* 7708 (CAS) [confirmed by Mishler]; Santa Cruz Co.: San Lorenzo Valley, Quail Hollow Ranch County Park, *Kellman* 945 (CAS).

***Syntrichia latifolia* (Bruch ex C. J. Hartman) Hübener** [Pottiaceae]

**Literature:** Jamieson 1969; Kellman 2003; Koch 1950a, 1951e; Lawton 1971; Shevock and Toren 2001; Toren 1977. As *Barbula latifolia* Lesquereux 1868; Lesquereux and James 1884; Watson 1880.

**Illustrations:** Lawton 1971; Smith 1978.

**Geographic subdivisions:** CW, GV, MP, NW, SN.

**Selected specimens:** Fresno Co.: Big Creek at Blue Canyon near Bretz Campground, Sierra National Forest, *Norris*, *Shevock*, & *Barahona* 87401; Mendocino Co.: East Side Road at Knight Hill along Russian River about 8 miles south of Ukiah, *Norris* 72652; Modoc Co.: Pin Creek Campground east of Likely, *Norris* 9436; San Francisco Co.: Lafayette Park, *Shevock* 19236; Santa Cruz Co.: north of Soda Lake near Chittendon, *Kellman* 921 (CAS); Shasta Co.: about 2.3 miles east of Anderson on road to Olinda, *Norris* 47625; Tehama Co.: Sacramento River at Woodson Bridge State Park, *Norris* 50423; Tulare Co.: Mineral King, slopes above Eagle Lake Creek just below Eagle Lake, Sequoia National Park, *Shevock* & *O'Brien* 15986.

***Syntrichia norvegica* Weber** [Pottiaceae]

**Literature:** As *Tortula norvegica* Crum and Anderson 1981; Harpel 1980a; Harthill et al. 1979; Koch 1950a, 1951e; Lawton 1971; Long 1978; Showers 1982; Spjut 1971.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Sharp et al. 1994.

**Geographic subdivisions:** DMoj, NW, SN, SNE, SW.

**Selected specimens:** Alpine Co.: above Red Lake Creek, Toiyabe National Forest, *Norris* 88128; Humboldt Co.: road to Eight Mile Lookout about 1 mile west of South Fork Mountain Road, Six Rivers National Forest, *Norris* 83873; Kern Co.: Scodie Mountains about 1 mile west of Walker Pass off of Highway 178, *Norris*, *Shevock*, & *Barahona* 87121; Lake Co.: north cirque of Hull Mountain, Mendocino National Forest, *Toren* & *Dearing* 7232 (CAS); San Diego Co.: Mesa Picnic Area, O'Neal Regional Park south of Lower Otay Reservoir, *Norris* & *Piippo* 82173; Tulare Co.: below Paradise

Ridge near Paradise Cave, Sequoia National Park, *Shevock* 14641.

***Syntrichia obtusissima* (C. Müller Hal.) Zander** [Pottiaceae]

**Literature:** As *Tortula obtusissima* Harthill et al. 1979; Koch 1950a.

**Illustrations:** Sharp et al. 1994.

**Geographic subdivisions:** DMoj, DSon, SN, SNE, SW.

**Selected specimens:** Kern Co.: Highway 178 below Walker Pass about 2 miles northwest of Cranebrake Creek, Scodie Mountains, *Kellman* 1442 (CAS); Riverside Co.: Snakeye Springs, Indian Cove, Joshua Tree National Park, *Norris* 57971 & 57999 and along Highway 74 at eastern boundary of San Bernardino National Forest below Bighorn Overlook, *Norris* 57860.

***Syntrichia pagorum* (Milde) Amann** [Pottiaceae]

**Literature:** Shevock and Toren 2001. As *Tortula pagorum* Anderson 1943; Crum and Anderson 1981; Harpel 1980a; Kellman 2003; Koch 1949a, 1950a; Yurky 1990, 1995.

**Illustrations:** Crum and Anderson 1981; Sharp et al. 1994; Stone 1971; Zander 1993.

**Geographic subdivisions:** CaR, CW, GV, NW, SW.

**Selected specimens:** Alameda Co.: University of California Berkeley Campus, *Thornburg s.n.* (UC); Butte Co.: City Square of Gridley, *Norris* 52539; Riverside Co.: Soboba Indian Reservation, San Jacinto Mountains, *Harpel* 1348 (pers. herb.); Sacramento Co.: Capitol Park at 15th and L Street, Sacramento, *Shevock* 12582; San Francisco Co.: Panhandle, Golden Gate Park, *Toren* 7799 (CAS) and Alamo Square, *Shevock* 18910; Santa Cruz Co.: Zayante Trail, Henry Cowell Redwoods State Park, *Kellman* 641 (UC); San Luis Obispo Co.: Tower Road near west end of Camp Roberts Military Reservation, *Norris* 100876; Tehama Co.: Black Butte Reservoir, *Norris* 50444.

***Syntrichia papillosa* (Wilson in Spruce) Juratzka** [Pottiaceae]

**Literature:** Crum and Anderson 1981; Harthill et al. 1979; Kellman 2003; Koch 1950a; Schnooburger 1942; Shevock and Toren 2001.

**Illustrations:** Crum and Anderson 1981; Ireland 1982; Schnooburger 1942; Sharp et al. 1994; Zander 1993.

**Geographic subdivisions:** CW, NW, SW.

**Selected specimens:** Alameda Co.: University of California Berkeley campus, *Shevock* & *Norris* 24478; Lake Co.: Highway 175 at Middletown, *Toren* 7250 (CAS); San Bernardino Co.: Meadowbrook City Park, City of San Bernardino, *Harpel* 785 (pers. herb.); San Francisco Co.: Lafayette Park, *Shevock* 19251; Santa Cruz Co.: near Eagle Rock, *Kellman* 869 (CAS).

**\**Syntrichia papillosissima* (Coppey) Loeske**  
[Pottiaceae]

**Illustrations:** As *Tortula papillosissima* Flowers 1953, 1973; Lawton 1971; Sharp et al. 1994. As *Tortula ruralis* var. *hirsuta* Harpel 1980a. See also Bizot 1954, 1965.

**Geographic subdivisions:** CaR, CW, MP, SN, SW.

**Selected specimens:** Fresno Co.: canyon west of Boyden Cave, Monarch Wilderness, South Fork Kings River, Sequoia National Forest, *Shevock & York 12338*; Lassen Co.: slopes of Shaffer Mountain north of Honey Lake, *Norris 76305*; Mariposa Co.: Yosemite Valley, Yosemite National Park, *Kellman 521* (CAS); Monterey Co.: along Arroyo Seco Creek about 4 miles west of Greenfield, *Norris 48504*; Modoc Co.: along Pepperdine Trail, South Warner Wilderness, Modoc National Forest, *Sanger s.n.* (UC); San Diego Co.: about 1 mile north of Cuyamaca State Park Headquarters, *Norris 50715*; Siskiyou Co.: Shasta River about 2 miles south of junction with Klamath River, *Norris 102954*.

***Syntrichia princeps* (De Notaris) Mitten**  
[Pottiaceae]

**Literature:** Kellman 2003; Shevock and Toren 2001. As *Barbula muelleri* Lesquereux 1868; Sullivant 1856; Watson 1880. As *Tortula princeps* Bourell 1981; Bradshaw 1926; Cooke 1941; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; Long 1978; McCleary 1972; McGrew 1976; Mishler 1978; Showers 1982; Sigal 1975; Spjut 1971; Steere et al. 1954; Strid 1974; Thomson and Ketchledge 1958; Toren 1977; Whittemore and Sommers 1999; Yurky 1990, 1995.

**Illustrations:** Flowers 1973; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CaR, CW, MP, NW, SN, SW.

**Selected specimens:** Fresno Co.: Horseshoe Bend along Highway 180, South Fork Kings River, Sequoia National Forest, *Shevock & York 12324*; Lake Co.: Clear Lake State Park, *Norris 47718*; Orange Co.: Upper Trabuco Canyon, Santa Ana Mountains, Cleveland National Forest, *Shevock 3989 & 3993*; Placer Co.: about 1 mile below Drum Powerhouse, *Norris 82001*; San Mateo Co.: Flume Trail near Boulder Creek Bridge just north of Woodside, *Whittemore 4406* (UC).

***Syntrichia ruralis* (Hedwig) Weber & D. Mohr**  
[Pottiaceae]

**Literature:** Shevock and Toren 2001. As *Barbula ruralis* Sullivant 1856. As *Tortula intermedia* Holmberg 1969; Koch 1950a; Koch and Ikenberry 1954; Sayre 1940; Sigal 1975; Spjut 1971; Steere 1954. As *Tortula ruraliformis* Koch 1950a. As *Tortula ruralis* Bourell 1981; Bradshaw 1926; Coville 1893; Crum and Anderson 1981; Harpel 1980a;

Harthill et al. 1979; Jamieson 1969; Kingman 1912; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Lesquereux and James 1884; Long 1978; McCleary 1972; McGrew 1976; Mishler 1978; Showers 1982; Spjut 1971; Strid 1974; Toren 1977; Yurky 1990, 1995. As *Tortula ruralis* var. *crinita* Harpel 1980a; Mishler 1978. As *Tortula montana* Howe 1897; Millspaugh and Nuttall 1923.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978; Zander 1993.

**Geographic subdivisions:** CaR, CW, DMoj, DSon, MP, NW, SN, SNE, SW.

**Selected specimens:** Kern Co.: Kelso Creek Road about 2 miles south of Bird Springs Pass junction, *Shevock 14883*; Los Angeles Co.: between Black Jack Campground and Orizaba Mountain, Santa Catalina Island, *Shevock & Thorne 4035*; San Bernardino Co.: Granite Mountains, Mojave National Preserve, *Norris, Shevock, & Barahona 87762*; San Diego Co.: Old Highway Road near Bankhead Springs, *Norris & Piippo 82116*; San Mateo Co.: Lake Pilarcitos, *Koch 3371* (UC); Shasta Co.: Coffee Creek at East Fork Coffee Creek, *Norris & Hermann 22585*.

***Tetraphis pellucida* Hedwig** [Tetraphidaceae]

**Literature:** Ireland 1982; Jamieson 1969; Koch 1950a; Lawton 1971; Lesquereux 1868; Smith 1970; Spjut 1971; Watson 1880; Weber and Simone 1977.

**Illustrations:** Abramov and Volkova 1998; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** NW, MP.

**Selected specimens:** Del Norte Co.: Smith River, Jedediah Smith State Park, *Norris 67354* and along Highway 299 about 2 miles west of campground, *Norris 85075*; Humboldt Co.: Prairie Creek Redwoods State Park, *Jamieson 286* (UC); Mendocino Co.: County Road 409 about 1 mile east of Highway 1 south of Fort Bragg, *Norris 11714*; Modoc Co.: Upper Rush Creek Campground about 8 miles north of Adin on Highway 299, *Norris, Nelson, & Dowty 19448*; Siskiyou Co.: between Tickner Creek and Blue Granite Lake, Klamath National Forest, *Norris 52278*.

***Thamnobryum neckeroides* (W. J. Hooker) E. Lawton** [Neckeraceae]

**Literature:** As *Thamnobryum leibergii* Spjut 1971. **Illustrations:** Lawton 1971.

**Geographic subdivisions:** NW.

**Selected specimens:** Humboldt Co.: Tish-Tang-a-Tang Creek near Grogans Hole, Six Rivers National Forest, *Norris 47727*; Siskiyou Co.: about 1 mile east of Copper Butte, Klamath National Forest, *Norris 50236* and Haypress Meadows, Marble Mountain Wilderness, Klamath National Forest, *Norris 12390*; Tehama Co.: Beegum Basin, north



slope of North Yolla Bolly Mountain, Shasta-Trinity National Forest, *Norris* 57040.

***Timmia austriaca* Hedwig** [Timmiaceae]

**Literature:** Brassard 1980; Crum and Anderson 1981; Holmberg 1969; Lawton 1971; Miller and Ireland 1978; Showers 1982; Spjut 1971.

**Illustrations:** Brassard 1979, 1980; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Mastracci 1993; Miller and Ireland 1978; Smith 1978.

**Geographic subdivisions:** CaR, NW.

**Selected specimens:** Del Norte Co.: Packsaddle Creek, *Norris* 52727 and South Siskiyou Fork below Prescott Cabin, Six Rivers National Forest, *Norris* 47923; Humboldt Co.: South Fork Tish-Tang-a-Tang Creek east of Hoopa, *Norris* & *Whitemore* 52386; Shasta Co.: Chaos Crag, Lassen Volcanic National Park, *Showers* 3739 (SFSU); Siskiyou Co.: Sugar Creek just east of Eaton Peak, Trinity Alps, Klamath National Forest, *Spjut, Norris*, & *J. Koponen* 6265 (UC), Salmon River near Big Flat, *Norris* 9183 and above Applegate River on road toward Cook and Green Pass, Rogue River National Forest, *Shevock* & *Toren* 20121.

***Timmia bavarica* Hessler** [Timmiaceae]

**Literature:** As *Timmia megapolitana* var. *bavarica* Crum and Anderson 1981.

**Illustrations:** Brassard 1979; Flowers 1973; Ignatov and Ignatova 2003; Lawton 1971; Mastracci 1993; Sharp et al. 1994.

**Geographic subdivisions:** DMoj, SNE.

**Selected specimens:** Inyo Co.: Methuselah Trail, Schulman Grove, Ancient Bristlecone Pine Forest Botanical Area, White Mountains, Inyo National Forest, *Norris* 46837 & 46852 and Mt. Birch, John Muir Wilderness, Inyo National Forest, *Laeger* 188 (CAS); San Bernardino Co.: summit of Kingston Peak, BLM Kingston Wilderness, Mojave Desert, *Laeger* & *Bogan* 1762 (CAS) [determined by Brassard].

***Timmiella anomala* (Bruch in W. P. Schimper) Limpricht** [Pottiaceae]

**Literature:** Harthill et al. 1979; Koch 1950a; Long 1978; McCleary 1972; Shevock and Toren 2001; Showers 1982. As *Trichostomum anomalum* Brandege 1891; Lesquereux 1868; Lesquereux and James 1884; Watson 1880.

**Illustrations:** Allen 2002; Crum and Anderson 1981; Sharp et al. 1994; Zander 1993.

**Geographic subdivisions:** CW, SN, SW.

**Selected specimens:** El Dorado Co.: Highway 193 at Garden Valley Road, *Norris* & *Piippo* 82308; Fresno Co.: Spanish Mountain Jeep Road, Sierra National Forest, *Shevock* & *York* 12402; Monterey Co.: Salmon Creek Trail, Santa Lucia Range, Los Padres National Forest, *Norris* 68227; Riverside Co.: Ortega Oaks Campground, Cleveland National Forest, *Norris* 58105 & 58130; San Diego Co.: Flinn Springs County Park, *Norris* 50669 and Mir-

amar Road near Miramar Air Station, *Norris* 50694; San Francisco Co.: Bernal Heights Park, *Shevock* 19258.

***Timmiella crassinervis* (Hampe) L. Koch** [Pottiaceae]

**Literature:** Bourell 1981; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Jamieson 1969; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Long 1978; Mishler 1978; Shevock and Toren 2001; Smith 1970; Strid 1974; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Timmiella flexiset* Kingman 1912. As *Timmiella vancouveriensis* Kingman 1912; Steere 1954; Steere et al. 1954. As *Trichostomum flavo-virens* var. *crassinerve* Lesquereux and James 1884. As *Trichostomum flexipes* Brandege 1891; Lesquereux 1868; Lesquereux and James 1884; Sullivan 1856; Watson 1880.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, CW, NW, SN.

**Selected specimens:** Butte Co.: Big Chico Creek, Upper Bidwell Park, Chico, *Janeway* 5514 (MO); Del Norte Co.: Smith River about 16 miles east of Gasquet along Highway 199, Six Rivers National Forest, *Norris* 8879; Lake Co.: Highway 53 about 1 mile south of Highway 20, *Norris* 47699; Madera Co.: Highway 41 at intersection of North Fork Road, *Norris* 51036; San Francisco Co.: McLaren Park, *Shevock* 19139; San Luis Obispo Co.: Foxen Canyon Road about 8 miles north of Los Olivos, *Norris* 68178; Santa Cruz Co.: Forest of Nisene Marks State Park, *Kellman* 212 (CAS); Siskiyou Co.: near Bear Lake, *Norris* 24193; Tulare Co.: Belknap Grove near Camp Nelson, Sequoia National Forest, *Norris* 50909.

**\**Tortella alpicola* Dixon** [Pottiaceae]

**Illustrations:** As *Tortella tortelloides* Eckel 1991. See Eckel (1997a) for discussion on this species.

**Geographic subdivisions:** NW.

**Selected specimens:** Lake Co.: canyon below Forest Road M-3 at Low Gap, Mendocino National Forest, *Shevock, Bourell*, & *Toren* 15866 [determined by Eckel] and *Toren, Dearing*, & *Shevock* 7714 (CAS).

**\**Tortella fragilis* (W. J. Hooker & Wilson in Drummond) Limpricht** [Pottiaceae]

**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Eckel 1991; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Saito 1975; Smith 1978; Zander 1993.

**Geographic subdivisions:** SN, SNE.

**Selected specimens:** Inyo Co.: above Robinson Lake south of Onion Valley, Inyo National Forest, *Norris* 46659 and east of Dragon Peak and north of Golden Trout Lake near Onion Valley, John Muir Wilderness, Inyo National Forest, *Norris* 46748 (confirmed by Eckel); Mono Co.: above Robinson Lake on trail to Barney Lake southeast of Twin Lakes, Toiyabe National Forest, *Norris* 99649.

***Tortella tortuosa* (Hedwig) Limpricht**

[Pottiaceae]

**Literature:** Spjut 1971.**Illustrations:** Abramov and Volkova 1998; Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Sharp et al. 1994; Smith 1978; Zander 1993.**Geographic subdivisions:** CaR, NW, SNE.**Selected specimens:** Alpine Co.: Noble Canyon Trail near junction with Pacific Crest Trail, Toiyabe National Forest, *Norris* 99691; Fresno Co.: canyon above Boyden Cave, Monarch Wilderness, Sequoia National Forest, *Shevock & York* 13617; Mono Co.: Convict Creek above Convict Lake, Inyo National Forest, *Shevock* 13792; Shasta Co.: Fall Creek Road about 1 mile southeast of McCloud Bridge at Shasta Lake, Shasta-Trinity National Forest, *Norris* 84880 and Highway 299 at Oak Run Road, *Norris* 80315 & 80336; Siskiyou Co.: near Echo Lake north of Red Butte about 5 air miles north of Seiad Valley, Klamath National Forest, *Spjut* 1057 (UC) and *Norris* 57607.***Tortula atrovirens* (J. E. Smith) Lindberg**

[Pottiaceae]

**Literature:** Kellman 2003; Millspaugh and Nuttall 1923; Shevock and Toren 2001. As *Barbula atrovirens* Watson 1880. As *Desmatodon californicus* Lesquereux 1868. As *Desmatodon convolutus* Flowers 1973; Harpel 1980a; Harthill et al. 1979; Koch 1950a; Koch and Ikenberry 1954; McCleary 1972; Sayre 1940; Sigal 1975; Spjut 1971; Steere 1954; Toren 1977; Yurky 1990, 1995. As *Desmatodon nervosus* Kingman 1912. As *Desmatodon nervosus* var. *edentulus* Brandegee 1891; Lesquereux 1868; Lesquereux and James 1884.**Illustrations:** Flowers 1973; Smith 1978; Zander 1993.**Geographic subdivisions:** CW, DMoj, DSon, SN, SW.**Selected specimens:** Imperial Co.: about 2 miles east of Mountain Springs County Park, Colorado Desert, *Norris & Piippo* 82087 (determined by Delgadillo); Inyo Co.: mouth of Grapevine Canyon, Death Valley National Park, *Norris* 10217a (determined by Crum); Kern Co.: Highway 178, Lower Kern River Canyon at Richbar, Sequoia National Forest, *Shevock & Tan* 13035; Lake Co.: Hell's Peak, *Toren* 649 (SFSU, UC); Orange Co.: Mojessa Canyon near Tucker Bird Sanctuary, Cleveland National Forest, *Shevock* 4001; San Luis Obispo Co.: Highway 166 at Clear Creek, Los Padres National Forest, *Norris* 80633 (determined by Delgadillo); Santa Barbara Co.: Windmill Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock* 20766 (determined by Delgadillo).***Tortula brevipes* (Lesquereux) Brotherus**

[Pottiaceae]

**Literature:** Flowers 1973; Harpel 1980a; Harthill et al. 1979; Kingman 1912; Koch 1950a; Koch andIkenberry 1954; Lawton 1971; McCleary 1972; Mishler 1978; Shevock and Toren 2001; Steere 1954; Toren 1977. As *Barbula brevipes* Brandegee 1881; Lesquereux 1868; Watson 1880. As *Barbula macrotricha* Cardot and Thériot 1904.**Illustrations:** Flowers 1973; Lawton 1971; Sharp et al. 1994.**Geographic subdivisions:** CW, DMoj, DSon, GV, MP, NW, SN.**Selected specimens:** Alameda Co.: on concrete retaining wall, Berkeley, *Cook* 1 (UC); Colusa Co.: Highway 20 at milepost 74, *Norris* 52511; Imperial Co.: about 2 miles east of Mountain Springs County Park, *Norris & Piippo* 82106; Lake Co.: Highway 20 at New Long Valley Road, *Toren* 7301 (CAS); Modoc Co.: vicinity of Hot Springs north of Middle Alkali Lake northeast of Cedarville, *Norris* 47483; Tulare Co.: north of Three Rivers just below Sequoia National Park boundary, *Shevock & Morosco* 16765.***Tortula californica* E. B. Bartram** [Pottiaceae]**Literature:** Bartram 1945; Harthill et al. 1979; Koch 1950a; McCleary 1972; Steere 1954.**Illustrations:** Bartram 1945; Sharp et al. 1994.**Geographic subdivisions:** CW, GV, MP, SW.**Selected specimens:** Kern Co.: Hart Park east of Bakersfield, *Norris* 50749; Modoc Co.: about 9 miles east of Cedarville along Highway 299, *Norris* 47462; Monterey Co.: Highway 1 near milepost 65.02, Garrapata State Park, *Kellman* 2954 (CAS); Riverside Co.: Lower Decker Canyon, Elsinore Mountains, *Fosberg* 307 (LAM); San Diego Co.: Santa Margarita Ecological Reserve, between Temecula and Fallbrook, *Kellman* 1392 (CAS) [determined by Mishler]; Santa Barbara Co.: Cherry Canyon, Santa Rosa Island, Channel Islands National Park, *Shevock* 20913.***Tortula euryphylla* Zander** [Pottiaceae]**Literature:** As *Desmatodon latifolius* Harthill et al. 1979; Koch 1950a, 1951e; Lawton 1971; Lesquereux 1868; McGrew 1976; Mishler 1978; Showers 1982; Spjut 1971; Strid 1974. As *Desmatodon latifolius* var. *muticus* Koch 1958; Lesquereux 1868; Watson 1880.**Illustrations:** Ignatov and Ignatova 2003. As *Desmatodon latifolius* Crum and Anderson 1981.**Geographic subdivisions:** CaR, NW, SN, SNE.**Selected specimens:** Inyo Co.: Chocolate Lake west of Big Pine, John Muir Wilderness, Inyo National Forest, *Norris* 46898 and Horseshoe Meadows Road near Little Cottonwood Creek, Inyo National Forest, *Shevock & Ng* 17593; Siskiyou Co.: Big Duck Lake, Klamath National Forest, *Norris* 23356; Tulare Co.: Mineral King on trail to Sawtooth Pass, Sequoia National Park, *Shevock & O'Brien* 16032.***Tortula guepinii* (Bruch & W. P. Schimper)****Brotherus** [Pottiaceae]**Literature:** As *Barbula guepini* Watson 1880. As *Desmatodon guepinii* Harthill et al. 1979; Kingman



1912; Koch 1950a; Koch and Ikenberry 1954; Lesquereux 1868; Lesquereux and James 1884; McCleary 1972; Millspaugh and Nuttall 1923; Steere 1954; Toren 1977; Whittemore and Sommers 1999.

**Illustrations:** Sharp et al. 1994.

**Geographic subdivisions:** CW, DSon, NW, SN, SW.

**Selected specimens:** Alameda Co.: Oakland, *Bolander* 47 (UC); Contra Costa Co.: Pine Canyon near Castle Rocks, Mt. Diablo State Park, *Norris* 100793; Kern Co.: Highway 178 about 0.7 mile east of Chimney Peak Road, *Shevock & Tan* 13073; Lake Co.: Manning Creek, Highway 175 about 4 miles west of Lakeport, *Toren, Bourell, Dearing, & Shevock* 6997 (CAS); San Benito Co.: Logs Path from Park Headquarters to High Peaks, Pinnacles National Monument, *Koch* 3720 (UC); San Diego Co.: Bow Willow Canyon Campground, Anza Borrego State Park, *Norris* 77742; Siskiyou Co.: Highway 96 about 2 miles from Fort Goff, *Norris* 72263; Tulare Co.: trail to waterfall near Stevenson Gulch, Middle Fork Tule River, Sequoia National Forest, *Shevock & Tan* 13108.

***Tortula inermis* Bridel [Pottiaceae]**

**Literature:** Coville 1893; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Koch 1950a; Lawton 1971; Long 1978; Mishler 1978; Strid 1974; Werger and During 1989. As *Barbula inermis* Lesquereux 1868; Lesquereux and James 1884; Watson 1880.

**Illustrations:** Flowers 1973; Lawton 1971; Sharp et al. 1994.

**Geographic subdivisions:** CW, DMoj, DSon, GV, NW, SN, SNE, SW.

**Selected specimens:** Fresno Co.: Warthan Creek about 7 miles west-southwest of Coalinga, *Norris* 55128; Kern Co.: Erskine Creek Canyon about halfway between Lake Isabella Blvd. and Liebel Ranch, Piute Mountains, *Shevock* 13358; Lake Co.: Mt. Konocti, shore of Clear Lake at Soda Bay, *Toren* 7167 (CAS) [determined by Mishler]; Riverside Co.: between Key Ranch and Barker Dam, Joshua Tree National Park, Mojave Desert, *Norris* 50523; Tehama Co.: end of Buckhorn Road, Black Butte Recreation Area, *Norris & Piippo* 82373; Trinity Co.: Swede Rock along Trinity River, Shasta-Trinity National Forest, *Norris* 51102.

**\**Tortula leucostoma* (R. Brown) W. J. Hooker & Greville [Pottiaceae]**

**Illustrations:** As *Desmatodon leucostoma* Lawton 1971.

**Geographic subdivisions:** CaR, MP.

**Selected specimens:** Modoc Co.: Highway 139 at Biles Road about 13 miles northwest of Canby, *Norris* 70480; Tehama Co.: Howard Creek trail about 1 mile east of Highway 299, *Norris* 55496 and Highway 36 east of Red Bluff at Mile Creek, *Norris* 21243.

***Tortula mucronifolia* Schwägrichen [Pottiaceae]**

**Literature:** Harpel 1980a; Harthill et al. 1979; Koch 1950a; Showers 1982; Strid 1974; Toren 1977.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971; Sharp et al. 1994; Zander 1993.

**Geographic subdivisions:** CaR, MP, NW, SN, SW. **Selected specimens:** Modoc Co.: along Highway 299 about 2 miles east of Middle Lake, *Norris* 70424; Riverside Co.: road below Pine Cove, San Jacinto Mountains, San Bernardino National Forest, *Harpel* 1237 (pers. herb.); Trinity Co.: Highway 299 about 4 miles west of Weaverville, *Norris* 73507; Tulare Co.: John Muir Trail at Wallace Creek, Sequoia National Park, *Peterson* 34 (UC).

***Tortula muralis* Hedwig [Pottiaceae]**

**Literature:** Crum and Anderson 1981; Harpel 1980a; Harthill et al. 1979; Howe 1896; Kellman 2003; Kingman 1912; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Shevock and Toren 2001; Showers 1982; Steere et al. 1954; Toren 1977; Yurky 1990, 1995.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CaR, CW, MP, NW, SW. **Selected specimens:** Humboldt Co.: on brick of house, Lewis Avenue and 11th Street, Arcata, *Norris* 8295; Lassen Co.: Highway 139 about 16 miles south of Adin, *Norris* 21459; Modoc Co.: vicinity of Hot Spring north of Middle Alkali Lake northeast of Cedarville, *Norris* 47506; Riverside Co.: Forest Road 5S09 along tributary of Stone Creek, San Jacinto Mountains, San Bernardino National Forest, *Harpel* 1189 (pers. herb.); San Francisco Co.: Golden Gate Park, San Francisco, *Shevock* 18904; Shasta Co.: along County Road A17 at intersection to Black Butte, *Norris* 23751.

***Tortula obtusifolia* (Schwägrichen) Mathieu [Pottiaceae]**

**Literature:** Kellman 2003; Shevock and Toren 2001. As *Desmatodon avenaceus* Kingman 1912. As *Desmatodon obtusifolius* Crum and Anderson 1981; Flowers 1973; Koch 1950a; Lesquereux and James 1884; Showers 1982.

**Illustrations:** Crum and Anderson 1981; Flowers 1973; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971.

**Geographic subdivisions:** CaR, CW, GV, NW, SN, SNE.

**Selected specimens:** Contra Costa Co.: Pine Canyon, Mt. Diablo State Park, *Norris* 100788; Inyo Co.: above Treasure Lake west of Big Pine, Inyo National Forest, *Norris* 46972; Lake Co.: Manning Creek, Highway 175 about 4 miles west of Lakeport, *Toren, Bourell, Dearing, & Shevock* 6998 (CAS); Monterey Co.: bluffs at the Pinnacles, Hunter-Liggett Military Reservation, *Norris* 87313;

Shasta Co.: Interstate 5 about 3 miles north of Tehama County line, *Norris* 48221; Tehama Co.: Highway 36 about 5 miles northeast of Red Bluff, *Norris* 48078; Tulare Co.: Bear Creek Road north of Scicon, Sequoia National Forest, *Shevock* 3971.

***Tortula plinthobia* (Sullivant & Lesquereux in A. Gray) Brotherus [Pottiaceae]**

**Literature:** Shevock and Toren 2001. As *Desmatodon plinthobius* Harpel 1980a; Harthill et al. 1979; Kingman 1912.

**Illustrations:** As *Desmatodon plinthobius* Crum and Anderson 1981; Flowers 1973.

**Geographic subdivisions:** CW, DMoj, MP, SW.

**Selected specimens:** Modoc Co.: Highway 299 about 2 miles east of Middle Lake, *Norris* 70423; Riverside Co.: Snow Creek Canyon, Desert Water Agency, *Harpel* 1160 (pers. herb.); San Francisco Co.: Third Street and Burke Street, San Francisco, *Shevock* 20206; San Luis Obispo Co.: Highway 58 about 1 mile east of La Panza Ranch, Los Padres National Forest, *Norris* 76290.

***Tortula protobryoides* Zander [Pottiaceae]**

**Literature:** As *Pottia bryoides* Harthill et al. 1979; Koch 1950a; Lesquereux 1868; McCleary 1972; Steere 1954. As *Mildeella bryoides* Howe 1897.

**Illustrations:** Arts 1987; Ignatov and Ignatova 2003; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CW, NW, SW.

**Selected specimens:** Alameda Co.: Brushy Peak northeast of Livermore, *Norris* 87174; Lake Co.: Highway 53 about 1 mile south of Highway 20, *Norris* 47705; Los Angeles Co.: San Gabriel Canyon, *MacFadden* 16879 (MO), La Tuna Canyon, Verdugo Hills, *MacFadden* 8115 (MO), and San Clemente Island, *Wheeler* 8088 (CAS, UC); Monterey Co.: Sam Jones Road about 1 km east of Pajojo Airstrip, Hunter-Liggett Military Reservation, *Norris* 87264; Riverside Co.: Santa Margarita River, *Kellman* 1379a (CAS) [determined by Stark]; San Diego Co.: San Vicente Dam about 3 miles north of Lakeside, *Stark* 692 (MO).

***Tortula subulata* Hedwig [Pottiaceae]**

**Literature:** Harthill et al. 1979; Holmberg 1969; Kellman 2003; Koch 1950a, 1951e; Koch and Ikenberry 1954; Lawton 1971; Mishler 1978; Showers 1982; Spjut 1971; Steere et al. 1954; Toren 1977. As *Barbula subulata* Lesquereux 1868; Watson 1880. As *Tortula angustata* Howe 1897.

**Illustrations:** Ignatov and Ignatova 2003; Lawton 1971; Smith 1978; Zander 1993.

**Geographic subdivisions:** CaR, CW, MP, NW, SN.

**Selected specimens:** Lake Co.: Cobb Mountain east of Geyser Rock, *Toren & Dearing* 7085 (CAS); Mariposa Co.: Summit Road about 2 miles north of Fish Camp, Sierra National Forest, *Norris* 85353; Modoc Co.: Highway 89 at Bear Creek, *Norris* 77940; Santa Cruz Co.: Eagle Rock, *Kellman* 886 (CAS); Shasta Co.: Lost Creek near Boundary Spring, Lassen Volcanic National Park,

*Showers* 2220 (UC); Siskiyou Co.: about 1 mile east of Copper Butte, *Norris* 50243; Tehama Co.: South Fork Beegum Creek about 1.5 miles west of Rat Trap Gap, *Norris* 56978; Tulare Co.: Forest Trail 31E18 at Silver Creek, Sequoia National Forest, *Shevock* 9082.

***Tortula systylia* (W. P. Schimper) Lindberg [Pottiaceae]**

**Literature:** As *Desmatodon systylius* Koch 1950a; Lesquereux 1868; Lesquereux and James 1884; Watson 1880.

**Illustrations:** As *Desmatodon systylius* Crum and Anderson 1981; Lawton 1971.

**Geographic subdivisions:** SN.

**Selected specimens:** Tulare Co.: Kern Plateau, along road 4.2 miles north of BLM Long Valley Campground and 6.7 miles southwest of Kennedy Meadows Road, *Shevock, Ng, & Markos* 18306.

**\**Tortula truncata* (Hedwig) Mitten in Godman [Pottiaceae]**

**Illustrations:** Zander 1993. As *Pottia truncata* Crum and Anderson 1981; Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** DMoj.

**Selected specimens:** Los Angeles Co.: Highway 138 about 3 miles west of Palmdale, *Norris* 68096.

***Trachybryum megaptilum* (Sullivant) W. B. Schofield [Brachytheciaceae]**

**Literature:** As *Camptothecium megaptilum* Howe 1897; Koch 1950a; Koch and Ikenberry 1954. As *Homalothecium megaptilum* Bourell 1981; Holmberg 1969; Lawton 1971; and McGrew 1976.

**Illustrations:** Lawton 1971.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** Del Norte Co.: Forest Road 4803, Siskiyou National Forest, *Norris* 70881; Humboldt Co.: road to Eight Mile Lookout about 1 mile west of South Fork Mountain Road, Six Rivers National Forest, *Norris* 83857; Lake Co.: near Violet Spring, Mendocino National Forest, *Toren* 7435 & 7455 (CAS); Mendocino Co.: East Side Road at Knight Hill along Russian River about 8 miles south of Ukiah, *Norris* 72642; Plumas Co.: about 0.5 mile south of Snake Lake and 4 miles northwest of Quincy, Plumas National Forest, *Dillingham* 925 (CAS); Shasta Co.: Highway 299 about 1 mile north of Mineral School at road intersection to Oak Run, *Norris* 68632; Siskiyou Co.: south of Seattle Bar, Rogue River National Forest, *Shevock & Toren* 20090 and McCloud River Preserve, The Nature Conservancy, *Norris & Hillyard* 106584.

**\**Trematodon boasii* W. B. Schofield [Bruchiaceae]**

**Illustrations:** Schofield 1966c.

**Geographic subdivisions:** SN.

**Selected specimens:** Sierra Co.: Highway 49 at



Yuba Pass, Tahoe National Forest, *Kellman* 251 (UC).

**\**Trichodon cylindricus* (Hedwig) W. P. Schimper** [Ditrichaceae]

**Illustrations:** Crum and Anderson 1981; Ireland 1978, 1982; Seppelt 1999.

**Geographic subdivisions:** CaR, NW.

**Selected specimens:** Humboldt Co.: near Scotty Point south of Patricks Point off of Highway 1, *Norris* 72937; Lake Co.: north cirque of Hull Mountain, Mendocino National Forest, *Toren & Dearing* 7616 (CAS) [confirmed by Ireland]; Mendocino Co.: Mt. Sanhedrin south of Little Signal Peak, *Toren, Heise, & Dearing* 7622 (CAS); Siskiyou Co.: below Castle Lake at campground site, Shasta-Trinity National Forest, *Toren & Shevock* 8188 (CAS).

**\**Trichostomum brachydontium* Bruch in F. A. Mueller** [Pottiaceae]

**Illustrations:** Allen 2002; Smith 1978.

**Geographic subdivisions:** SNE.

**Selected specimens:** Inyo Co.: end of Big Pine Creek Road near Glacier Lodge, Inyo National Forest, *Laeger* 1432 (CAS, MO).

**\**Trichostomum crispulum* Bruch in F. A. Mueller** [Pottiaceae]

**Illustrations:** Allen 2002; Ignatov and Ignatova 2003; Smith 1978; Zander 1993.

**Geographic subdivisions:** DMoj, NW.

**Selected specimens:** Humboldt Co.: Redwood Valley Road about 2 miles north of Redwood Valley, *Norris* 21222; Inyo Co.: South Fork Hanaupah Canyon, east base of Telescope Peak, Death Valley National Park, *Shevock & York* 21343; San Bernardino Co.: Coyote Canyon, Granite Mountains, Mojave National Preserve, *Norris* 87853.

**\**Trichostomum sweetii* (E. B. Bartram) Stark** [Pottiaceae]

**Illustrations:** Bartram 1945.

**Geographic subdivisions:** CW, DMoj, DSON.

**Selected specimens:** Contra Costa Co.: Mitchell Canyon, Mt. Diablo State Park, *Norris* 100613; Madera Co.: East Fork Chowchilla River, *Norris* 51068; Riverside Co.: eight miles west of Desert Center on road toward Twenty Nine Palms, Mojave Desert, *Norris* 57914; San Bernardino Co.: Interstate 15 at Zzyzx, *Bonine* 737 (UNLV) [determined by Stark].

***Tripterocladium leucocladulum* (C. Müller Hal.) A. Jaeger** [Hypnaceae]

**Literature:** Christy and Wagner 1996; Crum 1987; Koch 1950a; Lawton 1971.

**Illustrations:** Brotherus 1924–1925; Lawton 1971.

**Geographic subdivisions:** NW.

**Selected specimens:** Siskiyou Co.: Beaver Creek, south of junction of West Fork Beaver Creek, *Ownbey & Ownbey* 1897 (CAS).

***Triquetrella californica* (Lesquereux) Grout** [Pottiaceae]

**Literature:** Christy and Wagner 1996; Koch 1949a, 1950a; Shevock and Toren 2001; Stark 1980; Yurky 1995. As *Anomodon californicum* Lesquereux 1868.

**Illustrations:** Casas et al. 1993; Zander 1993.

**Geographic subdivisions:** CW, NW, SW.

**Selected specimens:** Contra Costa Co.: Mount Diablo, *Bolander* 203 (NY); Del Norte Co.: along Requa Trail, Redwood National Park, *Norris* 24103; Marin Co.: near Olema, Point Reyes National Seashore, *Howe* 30 (NY); Mendocino Co.: MacKerricher State Park, *Norris* 8533 (and CAS); San Diego Co.: slopes of San Vicente Reservoir midway between San Vicente Dam and south entrance parking lot, about 3 miles north of Lakeside, *Stark* 540d, 584, & 684 (MO); San Francisco Co.: Tank Hill, Clarendon Heights, *Shevock* 18920 (confirmed by Zander) and Clipper Street at Douglas Playground, *Toren* 7778 (CAS); Sonoma Co.: near Bodega Marine Laboratory, *Norris* 103485.

***Ulota megalospora* Venturi in Röll** [Orthotrichaceae]

**Literature:** Christy and Wagner 1996.

**Illustrations:** Grout 1928–1940; Lawton 1971.

**Geographic subdivisions:** NW.

**Selected specimens:** Del Norte Co.: Gasquet-Oreans Road about 6.5 miles from Big Flat, Six Rivers National Forest, *Norris* 74144 & 74145; Humboldt Co.: near French Camp, *Norris* 24304 and Forest Road 10N02 at head of Mill Creek, Six Rivers National Forest, *Norris* 70593; Siskiyou Co.: trail from Wilderness Falls toward Doe Flat, Klamath National Forest, *Norris* 67815; Trinity Co.: Onion Lake Road about 7 miles south of Onion Lake, Shasta-Trinity National Forest, *Norris & Rivera* 72572.

**\**Ulota obtusiuscula* C. Müller Hal. & Kindberg in Macoun** [Orthotrichaceae]

**Illustrations:** Ireland 1982; Smith 1978.

**Geographic subdivisions:** NW.

**Selected specimens:** Del Norte Co.: French Hill Road about 2.5 miles above Highway 199, southwest of Gasquet, Six Rivers National Forest, *Norris* 85050 and Little Rattlesnake Mountain, Six Rivers National Forest, *Wheeler* 7390 (UC); Humboldt Co.: Blue Lake near Weitchpec, *Norris* 56340 and 2 miles south of the mouth of Mad River, *Norris* 7660; Trinity Co.: Highway 36 at Olsen Creek, Six Rivers National Forest, *Norris* 56631.

***Ulota phyllantha* Bridel** [Orthotrichaceae]

**Literature:** Koch 1949a, 1950a.

**Illustrations:** Ireland 1982; Lawton 1971; Smith 1978.

**Geographic subdivisions:** CW, NW.

**Selected specimens:** Del Norte Co.: Kellogg Beach State Park at end of Pala Road west of Smith River,

*Norris* 75029; Humboldt Co.: College Cove about 2 miles north of Trinidad, *Norris* 23621, Ten Taypo Trail, Prairie Creek Redwood State Park, *Norris* 56767, and near Abalone Point, Patrick's Point State Park, *Norris* 23880; Marin Co.: coastal Headlands at Point Reyes Lighthouse, Point Reyes National Seashore, *Robertson* 1144 (UC) and Pierce Point Road, Point Reyes National Seashore, *Robertson* 1920 (CAS); Mendocino Co.: Inglenook Fen north of Fort Bragg, *Norris* 23433 and *Norris* 68777.

***Vesicularia vesicularis* (Schwägrichen)**

**Brotherus** [Hypnaceae]

**Literature:** Shevock and Toren 2001. As *Vesicularia amphibola* Koch 1949a, 1950a.

**Illustration:** Sharp et al. 1994.

**Notes:** This species is an introduced component of the California moss flora.

**Geographic subdivisions:** CW.

**Selected specimens:** San Francisco Co.: Golden Gate Park, Conservatory, *Toren* 688 (CAS, SFSU), *Bradshaw* s.n. (CAS), and *Wagner* s.n. (CAS).

***Warnstorfia exannulata* (W. P. Schimper in B.S.G.) Loeske** [Campyliaceae]

**Literature:** As *Drepanocladus exannulatus* Ireland 1982; Koch 1950a, 1958; Koch and Ikenberry 1954; Lawton 1971; McGrew 1976; Showers 1982; Spjut 1971; Wynne 1944. As *Harpidium exannulatum* Cooke 1941. As *Hypnum exannulatum* var. *cochleae* Watson 1880.

**Illustrations:** Flowers 1973; Hedenäs 1987, 1993a, 2003; Ireland 1982; Janssens 1983; Kanda 1978; Koponen et al. 1995; Lawton 1971; Smith 1978; Wynne 1944.

**Geographic subdivisions:** CaR, NW, SN.

**Selected specimens:** El Dorado Co.: Grass Lake west of Luther Pass, Eldorado National Forest, *Norris* 71308; Fresno Co.: Taboose Pass Trail, Kings Canyon National Park, *Shevock* 13861; Lassen Co.: Aspen Grove Campground, south end of Eagle Lake, Lassen National Forest, *Norris* 52820; Siskiyou Co.: South Sugar Lake, Klamath National Forest, *Norris* & *McGrew* 45637; Tuolumne Co.: near Piute Meadow, Emigrant Wilderness, Stanislaus National Forest, *Norris* 77099.

***Warnstorfia fluitans* (Hedwig) Loeske** [Campyliaceae]

**Literature:** As *Drepanocladus fluitans* Ireland 1982; Janssens 1983; Koch 1950a, 1951e, 1958; McGrew 1976; Spjut 1971; Toren 1977; Wynne 1944. As *Dichelyma swartzii* Lesquereux 1868.

**Illustrations:** Flowers 1973; Hedenäs 1993a; Ireland 1982; Janssens 1983; Kanda 1978; Koponen et al. 1995; Lawton 1971; Smith 1978; Wynne 1944.

**Geographic subdivisions:** MP, NW, SN.

**Selected specimens:** Alpine Co.: Highway 89 at Hope Valley, Toiyabe National Forest, *Norris* 48476; Glenn Co.: Keller Lake, west slope of Black

Butte, Mendocino National Forest, *Toren* & *Nilles* 98-219 (CAS); Humboldt Co.: Snow Camp Lake, *Norris* 50378; Mendocino Co.: Pygmy Cypress Forest along County Road 409 about 1 mile east of Highway 1 south of Fort Bragg, *Norris* 11758; Modoc Co.: near Hager Reservoir, *Norris*, *Nelson*, & *Dowty* 19422; Tulare Co.: Mitre Basin, Sequoia National Park, *J.T. Howell* s.n. (CAS) and above Priam Lake, *J.T. Howell* s.n. (CAS).

***Weissia andersoniana* Zander** [Pottiaceae]

**Literature:** As *Weissia glauca* Harpel 1980a.

**Illustrations:** Sharp et al. 1994; Stoneburner 1981.

**Geographic subdivisions:** DMoj, DSon, SW.

**Selected specimens:** Inyo Co.: south of Towne Pass, Death Valley National Park, *Kellman*, *Shevock*, & *York* 1427 (CAS); Riverside Co.: Snakeeye Springs, Indian Cove, Joshua Tree National Park, *Norris* 57987 and Highway 74 at eastern boundary of San Bernardino National Forest, *Norris* 57870.

**\**Weissia andrewsii* E. B. Bartram** [Pottiaceae]

**Illustrations:** Sharp et al. 1994.

**Geographic subdivisions:** DMoj, DSon.

**Selected specimens:** Inyo Co.: Panamint City, Panamint Mountains, Death Valley National Park, *York*, *Laeger*, & *Knaus* 2491 (CAS); Riverside Co.: Joshua Tree National Park, Snakeeye Springs, Indian Cove, *Norris* 57986 & 57989; and 5 miles south of road intersections to Salton View and Twenty Nine Palms, *Norris* 50549.

**\**Weissia condensata* (Voit in J. W. Sturm)**

**Lindberg** [Pottiaceae]

**Illustrations:** Allen 2002; Sharp et al. 1994.

**Geographic subdivisions:** DMoj, DSon, NW, SN.

**Selected specimens:** Lake Co.: Highway 29 about 1 mile north of Middletown, *Toren* & *Dearing* 7305 (CAS) [determined by Stoneburner]; San Bernardino Co.: Coyote Canyon, Granite Mountains, Mojave National Preserve, *Norris* 87859 and summit ridge of Chemechuevi Peak, Chemechuevi Mountains, *Laeger* 640 (CAS); Siskiyou Co.: Scott River about 8 miles west of Fort Jones, *Norris* 58190; Tulare Co.: Sequoia National Park: Kaweah River near Clough Cave, *Norris* & *Shevock* 92743 and Yucca Point Trail near Ash Mountain Park Headquarters, *Shevock* & *Whitmarsh* 16995.

***Weissia controversa* Hedwig** [Pottiaceae]

**Literature:** Bourell 1981; Crum and Anderson 1981; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Jamieson 1969; Kellman 2003; Koch 1950a, 1951e, 1958; Koch and Ikenberry 1954; Lawton 1971; McCleary 1972; Mishler 1978; Shevock and Toren 2001; Showers 1982; Sigal 1975; Strid 1974; Toren 1977; Whittemore and Sommers 1999; Yurky 1990, 1995. As *Weissia viridula* Brandege 1891; Kingman 1912; Lesquereux 1868; Steere 1954; Steere et al. 1954; Sullivant 1856; Watson 1880.

**Illustrations:** Allen 2002; Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982;



Lawton 1971; Sharp et al. 1994; Smith 1978; Stoneburner 1981; Zander 1993.

**Geographic subdivisions:** CW, MP, NW, SN, SW.  
**Selected specimens:** Del Norte Co.: between Requa and False Klamath Cove, Redwood National Park, *Norris* 24048; Lassen Co.: Highway 138 about 3 miles north of Susanville, *Norris* 52793; Marin Co.: junction of Bolinas-Fairfax Road and Highway 1, Golden Gate National Recreation Area, *Yurky* 677 (SFSU); Riverside Co.: El Cariso Campground, Cleveland National Forest, *Norris* 58095; Trinity Co.: New River between Denny and Mills Creek, *Norris* 23941; Tulare Co.: Forest Trail 33E20 toward the Forks of the Kern River, Golden Trout Wilderness, Sequoia National Forest, *Shevock* 14269.

*Weissia inoperculata* (H. Crum) H. Crum, W. C. Steere & L. E. Anderson [Pottiaceae]

**Literature:** As *Hymenostomum inoperculatum* Andrews 1924; Crum 1957.

**Illustrations:** Crum 1957.

**Geographic subdivisions:** CaR, CW, GV, NW.  
**Selected specimens:** Santa Clara Co.: Stanford University Campus at Sequoia Hall, *Schofield* s.n. (CAN) [determined by Crum]; Shasta Co.: Anderson to Shingletown Road about 11 miles east of Anderson, *Norris* 23707, Brushy Oak Trail at Oak Run Creek east of Highway 299, *Norris* 80372 and Highway 299 about 9 miles east of Bella Vista, *Norris* 47622; Trinity Co.: Hall City Caves east of Wildwood, Shasta-Trinity National Forest, *Norris* 71667.

*Zygodon menziesii* (Schwägrichen) Arnott [Orthotrichaceae]

**Literature:** Shevock 2000; Shevock and Toren 2001.

**Illustrations:** Catcheside 1980; Lewinsky 1989.

**Notes:** This species has recently been transferred back into the genus *Codonoblepharon* Schwägrichen. See Crosby et al. 2000; Goffinet and Vitt 1998.

**Geographic subdivisions:** CW.  
**Selected specimens:** San Francisco Co.: Panhandle, Golden Gate Park, *Shevock* 18773 and *Toren* 7797 (CAS), Jefferson Park, *Shevock* 18901 (confirmed by Vitt).

*Zygodon rupestris* W. P. Schimper ex Lorentz [Orthotrichaceae]

**Literature:** Shevock and Toren 2001. As *Zygodon viridissimus* Crum 1957; Crundwell 1957; Harthill et al. 1979; Koch 1950b; Mishler 1978; Saito 1970; Thomson and Ketchledge 1958; Toren 1977. As *Zygodon viridissimus* var. *rupestris* Holmberg 1969; Jamieson 1969. As *Zygodon vulgaris* Bourell 1981; Lawton 1971.

**Illustrations:** Ignatov and Lewinsky-Haapasaari 1994; Ireland 1981; Lawton 1971; Sharp et al. 1994; Smith 1978.

**Geographic subdivisions:** CW, NW, SN, SW.  
**Selected specimens:** Calaveras Co.: South Fork

Mokelumne River between West Point and Railroad Flat, *Norris & Shevock* 103382; Del Norte Co.: Stony Creek about 1 mile north of junction with Smith River, *Norris* 52766 and west of Hiouchi Bridge, Jedediah Smith Redwoods State Park, *Norris* 67315; Humboldt Co.: Eel River about 3 miles north of the start of the Avenue of the Giants, *Norris* 72146; Los Angeles Co.: USFS San Dimas Experimental Forest, Angeles National Forest, *Mishler* s.n. (LAM); Mendocino Co.: Ornbaun Creek near Mountain View Road, *Norris* 53210; San Francisco Co.: St. Francis Blvd., San Francisco, *Toren* 5001 (CAS); Santa Cruz Co.: San Lorenzo River near Rincon Road, Henry Cowell Redwoods State Park, *Kellman* 669 (UC); Trinity Co.: Highway 299 at Big French Creek Campground west of Big Bar, Shasta-Trinity National Forest, *Norris* 46134.

APPENDIX II

EXCLUDED TAXA

Koch (1950a) provided a list of taxa at the end of each family entry that he considered as erroneous records for California. Several of these taxa have subsequently been documented from California with a voucher specimen. We have not transferred all of the remaining excluded records of Koch (1950a) to this section except in a few cases where we have additional information or comment. In some cases, a different circumscription or species concept required modifications to names that were used in earlier checklists of mosses for California.

*Bryum arcticum* (R. Brown) Bruch & W. P. Schimper [Bryaceae]

**Literature:** Lesquereux 1868; Lesquereux and James 1884; Watson 1880.

**Notes:** We were unable to locate any historic packets to confirm this taxon in California. We have excluded it from the catalogue even though Lesquereux (1868) references a Bolander collection from Mt. Dana, Yosemite National Park.

*Callicladium haldanianum* (Greville) H. Crum [Hypnaceae]

**Literature:** Lawton 1971.

**Notes:** Although attributed for California by Lawton (1971) no voucher is cited. The nearest documented collection that we have seen occurs in Arizona (MO).

*Campylium radicale* (Palisot de Beauvois) Grout [Campyliaceae]

**Literature:** Spjut 1971.

**Notes:** The specimen attributed in Spjut's thesis we believe was misidentified since it could not be located at UC under this name. Apparently this collection has been annotated and filed elsewhere in the herbarium. None of the California *Campylium* specimens we examined is this species.

***Campylopus pilifer* Bridel** [Dicranaceae]

**Literature:** Frahm 1980.

**Notes:** Material originally attributed as this taxon in California has been re-named by Frahm as representing *Campylopus introflexus*. The nearest occurrence of *Campylopus pilifer* occurs in Arizona according to Frahm (1980).

***Climacium dendroides* (Hedwig) Weber & D. Mohr** [Climaciaceae]

**Literature:** Flowers 1973.

**Notes:** The reference to *Climacium* occurring in California is based on Flowers (1973). There is a very small fragment of *Climacium* at MO attributed for California and collected by MacFadden in 1957. However, it is not an original label and the locality is not clearly specified. This is extremely atypical for MacFadden collections and we are inclined to dismiss this record as a possible herbarium processing/labeling error. It is unlikely that collectors would have overlooked this species in California considering its large size and distinctive appearance, however, it is possible that it could be located within the state near the Oregon border. *Climacium dendroides* is documented from herbarium specimens in Oregon and to the east in Arizona. This taxon appears to be distributed throughout the mountainous western states except California and Nevada.

***Didymodon luridus* Hornschush in Sprengel** [Pottiaceae]

**Literature:** Moxley 1928. As *Didymodon trifarius* Jamieson 1969; Koch 1950a. As *Didymodon vinealis* var. *luridus* Zander 1993.

**Notes:** According to Zander, *Didymodon luridus* does not occur in California. Specimens attributed to this taxon in California are most likely within the *D. vinealis* complex.

***Entodon brevisetus* (W. J. Hooker & Wilson) Lindberg** [Entodontaceae]

**Literature:** Harthill et al. 1979; Koch 1950a.

**Notes:** This moss has not been subsequently rediscovered in California. We concur with Koch (1950a) that the original specimen was most likely a labelling error. We are inclined to dismiss this taxon as a component of the California moss flora. This record is based on a collection attributed from Los Angeles County near Pasadena, *McClatchie 12* (EGB).

***Funaria americana* Lindberg in Sullivant** [Funariaceae]

**Literature:** Koch 1950a; Yurky 1990, 1995. Attributed to California by Jennings (1913) and Bartram (1928). See also Crundwell and Nyholm 1974; Smith 1980.

**Notes:** Although attributed for California from several sources, we have not located a collection that we have determined to be this taxon in the state. We are of the opinion that these California records

are merely misidentifications, presumably of *Funaria hygrometrica*.

***Grimmia donniana* Smith** [Grimmiaceae]

**Literature:** Crum and Anderson 1981; Spjut 1971.

**Notes:** Although reported for California in the literature, all of the California specimens we have examined have been misidentified. No specimens of this taxon have been determined by Muñoz as occurring in the state as part of his review of California *Grimmia* holdings at UC.

***Grimmia incurva* Schwägrichen** [Grimmiaceae]

**Literature:** McGrew 1976; Spjut 1971. As *Grimmia contorta* Lesquereux 1868; Lesquereux and James 1884.

**Notes:** Although reported for California for over a century, examination of specimens have not validated this taxon for California. According to Muñoz (personal communication), this taxon is unlikely to occur in California.

***Grimmia involucrata* Cardot** [Grimmiaceae]

**Literature:** McCleary 1972.

**Notes:** The specimen attributed as this taxon from the Channel Islands was determined by Muñoz to be *Grimmia lisae*. According to Muñoz, this taxon would be unlikely to occur in California.

***Grimmia pilifera* Palisot de Beauvois** [Grimmiaceae]

**Literature:** Coville 1893. As *Grimmia arizonae* Koch 1950a. See also Muñoz and Pando 2000.

**Notes:** Although attributed for California, we have not seen specimens to validate this species in the state. A Weber collection (COLO) from California labelled as *G. pilifera* has been determined by Muñoz as *G. lisae*. Muñoz and Hastings (personal communication) are both of the opinion that this species is not in California, however, Hastings does recognize *G. arizonae* as distinct from *G. pilifera*. The nearest confirmed occurrences for *G. pilifera* are in eastern Arizona.

***Grimmia unicolor* W. J. Hooker in Greville** [Grimmiaceae]

**Literature:** Koch 1950a.

**Notes:** Specimens so labelled for California are misidentified, generally being *G. ovalis*. We have not seen a California packet annotated by either Greven or Muñoz to represent this species in California.

***Haplocladium microphyllum* (Hedwig) Brotherus** [Leskeaceae]

**Literature:** Harthill et al. 1979; Koch 1950a; McCleary 1972; Steere 1954. As *Hypnum calyptratum* Sullivant 1856. As *Thuidium microphyllum* Sayre 1940.

**Notes:** *Haplocladium microphyllum* reported for California is based on a collection obtained from near Los Angeles on Santa Catalina Island [see Koch 1950a; Sayre 1940]. We were not able to lo-



cate this specimen to validate this entry. The nearest herbarium specimen that we were able to find of *Haplocladium microphyllum* occurs in Arizona. We therefore have excluded this taxon until it can be confirmed for California.

***Hedwigia ciliata* (Hedwig) Palisot de Beauvois**  
[Hedwigiaceae]

**Literature:** Buck and Norris 1996; Koch 1950a; Steere et al. 1954.

**Notes:** Although frequently reported in the literature as a component of the California moss flora, the Californian material actually represents two different taxa. See narrative under *Hedwigia detonsa* and *Hedwigia stellata* in this catalogue.

***Hypnum cupressiforme* Hedwig** [Hypnaceae]

**Literature:** Koch 1950a; Yurky 1995.

**Notes:** The California record is based on a Marin County collection that we have not been able to locate and validate. Mt. Tamalpais, *Bailey s.n.* (Koch 1950a). *Hypnum cupressiforme* has proven to be a rather weedy species once introduced, especially in Hawai'i. If it becomes introduced to California, it would likely become a naturalized component of the state bryoflora in the coastal counties as a lawn weed.

***Mielichhoferia mielichhoferiana* (Funck) Loeske**  
[Mielichhoferiaceae]

**Literature:** Shaw 1994a, 1994b.

**Notes:** The California material attributed as *Mielichhoferia mielichhoferiana* or *Mielichhoferia mielichhoferi* is *M. elongata*. See narrative under *Mielichhoferia elongata* in this catalogue.

***Pogonatum urnigerum* (Hedwig) Palisot de Beauvois** [Polytrichaceae]

**Literature:** Spjut 1971.

**Notes:** The specimen attributed in Spjut's thesis we believe was misidentified since it could not be located at UC under this name. Apparently it has been annotated and filed elsewhere in the herbarium, most likely to another member of the Polytrichaceae.

***Pohlia bulbifera* (Warnstorf) Warnstorf**  
[Mniaceae]

**Literature:** Harpel 1980a; Harthill et al. 1979; Long 1978.

**Notes:** See Shaw (1981a) for narrative features separating *Pohlia bulbifera* from *P. camptotrachela* and *P. andrewsii*. We were unable to locate and verify a California collection for this species.

***Pohlia longicollis* (Hedwig) Lindberg** [Mniaceae]

**Literature:** Strid 1974.

**Notes:** The specimen cited in Strid's thesis as representing this taxon was not located. We were unable to locate and verify a California collection for this species and therefore have excluded it at this time.

***Pseudocrossidium revolutum* (Bridel in Schrader) Zander** [Pottiaceae]

**Literature:** Eckel 1997a.

**Notes:** *Pseudocrossidium revolutum* is currently viewed to be a Eurasian taxon and the western North American material is now treated as *Pseudocrossidium obtusulum* in this catalogue.

***Racomitrium aquaticum* (Bridel ex Schrader) Bridel** [Grimmiaceae]

**Literature:** Christy and Wagner 1996.

**Notes:** According to Dr. Halina Bednarek-Ochyra (2000), *Racomitrium aquaticum* has been erroneously attributed for the Pacific Northwest. The plants referred to this taxon from the Pacific Northwest (Lawton 1971) actually represent a new recently described species (*Racomitrium ryszardii*). Specimens previously identified as *R. aquaticum* from California represent other taxa.

***Racomitrium canescens* (Hedwig) Bridel**  
[Grimmiaceae]

**Literature:** Bourell 1981; Crum and Anderson 1981; Flowers 1973; Howe 1897; Koch 1950a; Lesquereux 1868; Watson 1880; Yurky 1990, 1995.

**Notes:** Although reported for California in the literature, the California material represents *Racomitrium elongatum*, a taxon segregated from *R. canescens*.

***Rhizomnium nudum* (Britton & R. S. Williams) T. Koponen** [Mniaceae]

**Literature:** Christy and Wagner 1996.

**Notes:** Distribution map in Christy and Wagner (1996) displays range into California, however, no collections of this species have been located even after extensive surveys.

***Schistidium apocarpum* (Hedwig) Bruch & W. P. Schimper** [Grimmiaceae]

**Literature:** As *Grimmia apocarpa* Bourell 1981; Crum and Anderson 1981; Flowers 1973; Harpel 1980a; Harthill et al. 1979; Holmberg 1969; Howe 1896; Koch 1950a; Koch and Ikenberry 1954; Lawton 1971; Lesquereux 1868; Long 1978; McGrew 1976; Mishler 1978; Showers 1982; Sigal 1975; Spjut 1971; Steere et al. 1954; Toren 1977; Watson 1880. Misidentified as *Grimmia apocarpa* var. *atrofusca* McCleary 1972.

**Notes:** According to Hans Blom (1996), *Schistidium apocarpum*, common in northern Europe, has been misapplied to accommodate California collections. *Schistidium apocarpum* in North America is restricted to the extreme northeastern portion of the continent (Blom 1996). In California, the collections previously labelled as *Schistidium apocarpum* represent at least two undescribed species.

***Schistidium heterophyllum* (Kindberg in Macoun) McIntosh in L. E. Anderson, H. Crum & W. R. Buck** [Grimmiaceae]

**Literature:** As *Grimmia heterophylla* Toren 1977; Toren and Sigal 1974.

**Notes:** Literature references for this taxon in California are based on collections that have subsequently been determined to be *Grimmia tergestina*.

***Splachnum melanocaulon* (Wahlenberg)  
Schwägrichen** [Splachnaceae]

**Literature:** Lesquereux 1868.

**Notes:** Habitat available for this species is attributed to California as indicated by Mitten in Lesquereux (1868). However, there are no herbarium specimens for this taxon occurring in California. Based on the current distribution for this species, it would be highly unlikely for this species to occur in California. We have therefore excluded it from the California moss flora.

***Syntrichia intermedia* Bridel** [Pottiaceae]

**Literature:** As *Tortula intermedia* McCleary 1972.

**Notes:** This species is excluded from Mishler's dissertation (1984) as occurring in California. The references to this taxon obtained from the Channel Islands is in error. However, we have not been able to review specimens so labeled to determine the correct placement in this catalogue.

***Tetraphis geniculata* Girgensohn ex Milde**  
[Tetraphidaceae]

**Literature:** Christy and Wagner 1996.

**Notes:** Christy and Wagner (1996) report a California occurrence for *Tetraphis geniculata*, however, we have not confirmed the report with a voucher specimen. *Tetraphis pellucida* is confirmed for California. However, both species are known to occur in mixed populations in the Pacific Northwest. While we have excluded this species, it is still possible that it will be documented for California.

***Tortula fragilis* (Taylor) Ochyra** [Pottiaceae]

**Literature:** Harthill et al. 1979; Long 1978.

**Notes:** According to Mishler (personal communication) the earlier literature citations for this taxon as part of the California bryoflora are in error. The specimens originally attributed as *Tortula fragilis* most likely belong to *Tortula inermis* (*Syntrichia inermis* in this catalogue) and related species. *Tortula fragilis* is known from Mexico with the nearest U.S. occurrence being in the state of New Mexico. See also Mishler 1984.

### APPENDIX III

#### POSSIBLE ADDITIONS TO THE CALIFORNIA MOSS FLORA

Several mosses documented in adjacent states (primarily Oregon) are expected to occur in California based on our assessment of similar habitats and vegetation types. In this Appendix we list those species where herbarium specimens have verified an occurrence basically within 50 air miles of the California border. We view these taxa as likely to be located in the state with ongoing field study and collection. We provide this list of likely new state

additions here in the expectation that other collectors will locate a California occurrence in the near future.

***Dicranoweisia crispula* (Hedwig) Milde**  
[Seligeriaceae]

**Notes:** Although reported in the literature for the state, all of the California material attributed to this taxon have been determined by us to represent *D. contermina*. A recent collection along the Nevada side of Lake Tahoe we believe to be *D. crispula*. This species should be expected on the California side of the Lake Tahoe Basin.

**Illustrations:** Crum and Anderson 1981; Flowers 1956.

**Selected specimens:** NEVADA: Douglas Co.: along Highway 28 about 0.5 mile north of junction with Highway 50 just east of Lake Tahoe, *Shevock* 22061.

***Didymodon nevadensis* Zander in Zander, Stark & Marrs-Smith** [Pottiaceae]

**Literature:** Zander et al. 1995.

**Illustrations:** Zander et al. 1995.

**Notes:** Although this species is currently not recorded for California, it was originally described from populations near Las Vegas on gypsum soils. Since suitable habitat for this species occurs in the Death Valley region, this species could eventually be located in the state.

**Selected specimens:** NEVADA: Clark Co.: Lime Ridge about 16 km north of Gold Butte, *Stark & Marrs-Smith* NV-225a (UNLV) and Bitter Ridge, 1.2 km north of Black Butte, *Stark* NV-479 (UNLV).

***Hypnum revolutum* (Mitten) Lindberg var.  
*ravauldii* (Boulay) Ando** [Hypnaceae]

**Illustrations:** No illustration located for this taxon.

**Notes:** This *Hypnum* has recently been documented in the Sweetwater Range just across the state line in Nevada. It is to be expected on rock walls (esp. volcanics) within the pinyon pine-Utah juniper woodlands in Mono Co.

**Selected specimens:** NEVADA: Douglas Co.: Desert Creek Canyon about 0.5 mile from Desert Creek Campground, Sweetwater Range, Toiyabe National Forest, *Shevock* 22167 (determined by Schofield).

***Racomitrium rysardii* Bednarek-Ochyra**  
[Grimmiaceae]

**Literature:** Misapplied as *Racomitrium aquaticum* Christy and Wagner 1996. See Bednarek-Ochyra 2000.

**Illustrations:** Bednarek-Ochyra 2000. Misapplied as *Racomitrium aquaticum* Lawton 1971; Wagner 1998.

**Notes:** Although this species is currently not documented for California, *Racomitrium rysardii* should be looked for in the headwaters of the Applegate and Rogue River watersheds in California.



**Selected specimens:** OREGON: Multnomah Co.: Cascade Range west of Mt. Hood, *Rambo s.n.* (UC) [determined by Bednarek-Ochyra].

***Schistostega pennata* (Hedwig) Weber & D. Mohr** [Schistostegiaceae]

**Illustrations:** Lawton 1971.

**Notes:** Although this species is currently not recorded for California, a population approximately 35 air miles north of the California/Oregon state line appears to be the southernmost occurrence. Since suitable habitat for this species occurs in extreme northwest California, this species should eventually be located in the state.

**Selected specimens:** OREGON: Douglas Co.: Highway 138, south shore Diamond Lake, Umpqua National Forest, *Harpel 17848 & 18132* (CAS).

***Tayloria serrata* (Hedwig) Bruch & W. P. Schimper** [Splachnaceae]

**Literature:** Christy and Wagner 1996; Koch 1950a (based on Sayre 1935).

**Illustrations:** Crum and Anderson 1981; Ignatov and Ignatova 2003; Ireland 1982; Lawton 1971.

**Notes:** Christy and Wagner (1996) reference California within the species range. A population about 35 air miles north of the California/Oregon state line appears to be the southernmost record. This species is highly probable to occur in California.

**Selected specimens:** OREGON: Jackson Co.: Blue Lake Basin, Sky Lakes Wilderness, Rogue River National Forest, *Norris 52452*.

***Tomentypnum nitens* (Hedwig) Loeske** [Campyliaceae]

**Literature:** Koch 1950a; Spjut 1971. As *Campothecium nitens* Wynne 1943.

**Illustrations:** Flowers 1973.

**Notes:** Although habitat occurs for this moss in California, published reports for this moss in northern California are based on mis-identified material. We were unable to locate and confirm a Californian collection of this taxon. This species is documented for Oregon (Christy and Wagner 1999). *Tomentypnum nitens* should be searched for in meadow-fen areas with marble-limestone bedrock in the Klamath Mountains. A recent population was obtained by Jessup a few miles north of the state line.

**Selected specimens:** OREGON: Klamath Co.: off of Clover Creek about 4 km southeast of junction with Dead Indian Memorial Road, Buck Lake area, *Jessup 971004.14* (UC).

tive circumscriptions not selected in the current catalogue are also provided.

- Acaulon muticum* (Hedwig) Müller Hal. = *A. rufescens*
- Acaulon muticum* (Hedwig) Müller Hal. var. *rufescens* (A. Jaeger) Crum = *A. rufescens*
- Acaulon rubrum* Grout = *A. rufescens*
- Acrocladium cuspidatum* (Hedwig) Lindberg = *Calliergonella cuspidata*
- Aloina aloides* (Schultz) Kindberg = *A. ambigua*
- Aloina aloides* (Schultz) Kindberg var. *ambigua* (Bruch & Schimper) Craig in Grout = *A. ambigua*
- Aloina pilifera* (De Notaris) Crum & Anderson = *A. bifrons*
- Aloina rigida* var. *pilifera* (Bruch & Schimper) Limpricht = *A. bifrons*
- Alsia abietina* Sullivan = *Dendroalsia abietina*
- Alsia californica* var. *flagellifera* (Renauld & Cardot) Sullivan = *A. californica*
- Alsia circinalis* Sullivan & Kingman = *Dendroalsia abietina*
- Alsia longipes* Sullivan & Lesquereux = *Bestia longipes*
- Amblystegiella jungermannioides* (Bridel) Giacomini = *Platydictya jungermannioides*
- Amblystegium americanum* Grout = *Conardia compacta*
- Amblystegium compactum* (Müller Hal.) Austin = *Conardia compacta*
- Amblystegium irriguum* (Hooker & Wilson) Schimper in Bruch & Schimper = *Hygroamblystegium tenax*
- Amblystegium riparium* (Hedwig) Bruch & Schimper = *Leptodictyum riparium*
- Amblystegium riparium* var. *trichopodium* (Schultz) Bruch & Schimper = *Leptodictyum humile*
- Amblystegium tenax* (Hedwig) C. Jensen = *Hygroamblystegium tenax*
- Ambystegium trichopodium* (Schultz) Hartman = *Leptodictyum humile*
- Amphoridium californicum* Lesquereux & James = *Amphidium californicum*
- Anacolia aristifolia* Flowers in Grout = *A. menziesii*
- Anacolia menziesii* var. *baueri* (Hampe) Flowers in Grout = *A. baueri*
- Anisothecium varium* (Hedwig) Mitten (misapplied for California). See *Dicranella howei*
- Anoetangium californicum* Howe = *Amphidium californicum*
- Anoetangium obtusifolium* (Brotherus & Paris) Grout = *Molendia sendmeriana*
- Anomobryum filiforme* (Dickson) Solms-Laubach in Rabenhorst = *A. julaceum*
- Anomodon californicum* Lesquereux = *Triquetrella californica*
- Antitrichia californica* var. *ambigua* Renauld & Cardot = *A. californica*
- Antitrichia curtispindula* (Hedwig) Bridel (in California) = *A. gigantea*
- Antitrichia curtispindula* var. *gigantea* Sullivan & Lesquereux = *A. gigantea*
- Arctoa blyttii* (Bruch & Schimper) Grout = *Kiaeria blyttii*
- Arctoa falcata* (Hedwig) Grout = *Kiaeria falcata*
- Arctoa starkei* (Weber & Mohr) Grout = *Kiaeria starkei*
- Atractylocarpus stenocarpus* (Wilson) Zander = *Campylopodidiella stenocarpa*
- Atrichum oerstedianum* (Müller Hal.) Mitten (in California) = *A. undulatum*
- Atrichum undulatum* var. *selwynii* (Austin) Grout = *A. selwynii*
- Barbula acuta* (Bridel) Bridel = *Didymodon rigidulus*

APPENDIX IV

SYNONYMS AND EXCLUDED NAMES

The history and application of scientific names applied to California mosses can be traced in part back to Hampe (1860), Sullivan (1864), Lesquereux (1868), Watson (1880) and Lesquereux and James (1884). This appendix lists the former names that have been used in the botanical literature for mosses attributed from California. Alterna-

- Barbula amplexa* Lesquereux = *Syntrichia amplexa*  
*Barbula arctocarpa* Lesquereux = *Didymodon vinealis*  
*Barbula atrovirens* Schimper = *Tortula atrovirens*  
*Barbula bakeri* Cardot & Thériot = *Didymodon vinealis*  
*Barbula bolanderi* Lesquereux = *Syntrichia bolanderi*  
*Barbula brachyphylla* Sullivant = *Didymodon brachyphyllus*  
*Barbula brevipes* Lesquereux = *Tortula brevipes*  
*Barbula chloronotos* (Bridel) Bridel = *Crossidium squamiferum*  
*Barbula cylindrica* (Taylor) Schimper = *Didymodon insulanus*  
*Barbula fallax* Hedwig = *Didymodon fallax*  
*Barbula flexifolia* Hampe = *Didymodon insulanus*  
*Barbula guelpinii* Schimper = *Tortula guelpinii*  
*Barbula inermis* Müller Hal. = *Tortula inermis*  
*Barbula insulana* De Notaris = *Didymodon insulanus*  
*Barbula laevipila* Bridel = *Syntrichia laevipila*  
*Barbula latifolia* (Bruch ex Hartman) Hübener = *Syntrichia latifolia*  
*Barbula macrotricha* Cardot & Thériot = *Tortula brevipes*  
*Barbula muelleri* Bruch & Schimper = *Syntrichia princeps*  
*Barbula platyneura* Müller Hal. & Kindberg = *Pseudocrossidium revolutum*  
*Barbula rigidula* Schimper = *Didymodon rigidulus*  
*Barbula rubiginosa* Mitten = *Didymodon occidentalis*  
*Barbula ruralis* Hedwig = *Syntrichia ruralis*  
*Barbula semitorta* Sullivant = *Didymodon vinealis*  
*Barbula subfallax* Müller Hal. = *Didymodon insulanus*  
*Barbula subulata* (Hedwig) P. Beauvois = *Tortula subulata*  
*Barbula vinealis* Bridel = *Didymodon vinealis*  
*Barbula virescens* Lesquereux = *Didymodon insulanus*  
*Bartramia fontana* Hedwig = *Philonotis fontana*  
*Bartramia glauco-viridis* Müller Hal. & Kindberg = *B. pomiformis*  
*Bartramia menziesii* Turner = *Anacolia menziesii*  
*Bestia breweriana* (Lesquereux) Grout = *Isothecium cristatum*  
*Bestia breweriana* var. *howei* (Kindberg) Grout = *Isothecium cristatum*  
*Bestia breweriana* var. *lutescens* Lesquereux & James = *Isothecium cristatum*  
*Bestia cristata* (Hampe) L. Koch = *Isothecium cristatum*  
*Bestia holzingeri* (Renauld & Cardot) Brotherus = *Bryolawtonia vancouveriensis*  
*Bestia occidentalis* (Sullivant & Lesquereux) Grout = *Bryolawtonia vancouveriensis*  
*Bestia vancouveriensis* (Kindberg) Wijk & Margadant = *Bryolawtonia vancouveriensis*  
*Blindia acuta* var. *flexipes* Renauld & Cardot = *B. acuta*  
*Blindia flexipes* (Renauld & Cardot) Kindberg = *B. acuta*  
*Brachythecium albicans* var. *occidentale* Renauld & Cardot = *B. albicans*  
*Brachythecium bestii* Grout = *B. reflexum*  
*Brachythecium californicum* (Lesquereux) Jaeger = *Scleropodium californicum*  
*Brachythecium collinum* var. *idahense* Renauld & Cardot = *B. velutinum*  
*Brachythecium curtum* (Lindberg) Limpricht = *B. oedipodium*  
*Brachythecium erythrorrhizon* var. *suberythrorrhizon* (Renauld & Cardot) Grout = *B. venustum*  
*Brachythecium lamprochryseum* Müller Hal. & Kindberg = *B. frigidum*  
*Brachythecium latifolium* Kindberg = *B. nelsoni*  
*Brachythecium pacificum* Jennings = *B. asperillum*  
*Brachythecium petrophilum* Williams = *B. venustum*  
*Brachythecium starkei* (Bridel) Bruch & Schimper var. *explanatum* (Bridel) Mönkemeyer = *B. rutabulum*  
*Brachythecium subasperillum* Cardot & Thériot = *B. frigidum*  
*Brachythecium suberythrorrhizon* Renauld & Cardot = *B. venustum*  
*Brachythecium velutinum* var. *venustum* (De Notaris) Arceangeli = *B. venustum*  
*Brachythecium washingtonianum* Eaton in Grout = *B. asperillum*  
*Braunia californica* Sullivant = *Pseudobraunia californica*  
*Bryum albicans* (Wahlenberg) Roehling = *Pohlia wahlenbergii*  
*Bryum angustirete* Kindberg = *B. algovicum*  
*Bryum argenteum* var. *lanatum* (P. Beauvois) Hampe = *B. lanatum*  
*Bryum atwateriae* Müller Hal. = *B. miniatum*  
*Bryum bigelovii* Sullivant = *Pohlia ludwigii*  
*Bryum bolanderi* Lesquereux = *Pohlia bolanderi*  
*Bryum californicum* Sullivant = *B. bicolor*  
*Bryum ceruum* (Hedwig) Bruch & Schimper = *B. uliginosum*  
*Bryum cirrhatum* Hoppe & Hornschuch = *Bryum lisae*  
*Bryum commutatum* Watson = *Pohlia drummondii*  
*Bryum crassirameum* Renauld & Cardot = *B. pseudotriquetrum*  
*Bryum creberrimum* Taylor = *B. lisae*  
*Bryum crudum* Schreber = *Pohlia cruda*  
*Bryum cuspidatum* (Bruch & Schimper) Schimper = *B. lisae*  
*Bryum dichotomum* Hedwig = *B. bicolor*  
*Bryum duvallii* Voit = *B. weigeli*  
*Bryum firmum* Schreber = *B. pseudotriquetrum*  
*Bryum flagellosum* Kindberg = *B. pseudotriquetrum*  
*Bryum hendersonii* Renauld & Cardot = *B. canariense*  
*Bryum inclinatum* (Bridel) Sturm = *B. amblyodon*  
*Bryum intermedium* Bridel (misapplied for California). See *B. lisae*  
*Bryum lisae* var. *cuspidatum* (Bruch & Schimper) Margadant = *B. lisae*  
*Bryum lonchocaulon* Müller Hal. = *B. lisae*  
*Bryum microerythrocarpum* Müller Hal. & Kindberg = *B. subapiculatum*  
*Bryum nudicaule* Lesquereux = *Pohlia drummondii*  
*Bryum nutans* var. *bicolor* (Hoppe & Hornschuch) Bruch & Schimper = *Pohlia nutans*  
*Bryum obconicum* Hornschuch = *B. capillare*  
*Bryum occidentale* Sullivant & Lesquereux = *B. capillare*  
*Bryum pendulum* (Hornschuch) Schimper = *B. algovicum*  
*Bryum polymorphum* Bruch & Schimper = *Pohlia elongata*  
*Bryum provinciale* Philibert = *B. canariense*  
*Bryum pseudotriquetrum* var. *bimum* (Bridel) Liljeblad = *B. bimum*  
*Bryum pseudotriquetrum* var. *crassirameum* (Renauld & Cardot) Lawton = *B. pseudotriquetrum*  
*Bryum pyriforme* Hedwig = *Leptobryum pyriforme*  
*Bryum sandbergii* Holzinger = *Roellia roellii*  
*Bryum sanguilentum* Renauld & Cardot = *B. capillare*  
*Bryum stenotrichum* Müller Hal. = *B. amblyodon*  
*Bryum subdrepanocladum* Cardot & Thériot = *B. capillare*  
*Bryum subrotundum* Bridel = *B. pallescens*  
*Bryum tortifolium* Funck in Bridel = *B. cyclophyllum*  
*Bryum tozeri* Greville = *Epipterygium tozeri*



- Buxbaumia indusiata* Bridel = *B. viridis*  
*Calliargon stramineum* (Bridel) Kindberg = *Straminergon stramineum*  
*Camptothecium aeneum* (Mitten) Jaeger = *Homalothecium aeneum*  
*Camptothecium aeneum* var. *dolosum* (Renauld & Cardot) Grout = *Homalothecium aeneum*  
*Camptothecium alsioides* Kindberg = *Homalothecium arenarium*  
*Camptothecium amesiae* Renauld & Cardot = *Homalothecium pinnatifidum*  
*Camptothecium arenarium* (Lesquereux) Jaeger = *Homalothecium arenarium*  
*Camptothecium dolosum* Renauld & Cardot = *Homalothecium aeneum*  
*Camptothecium lutescens* (Hedwig) Schimper in Bruch & Schimper (in California) = *Homalothecium fulgescens*  
*Camptothecium lutescens* var. *fulgescens* (Mitten ex Müller Hal.) Persson = *Homalothecium fulgescens*  
*Camptothecium lutescens* var. *occidentale* Renauld & Cardot = *Homalothecium fulgescens*  
*Camptothecium megaptitum* Sullivant = *Trachybryum megaptitum*  
*Camptothecium nevadense* Lesquereux = *Homalothecium nevadense*  
*Camptothecium nitens* (Hedwig) Schimper = *Tomentypnum nitens*  
*Camptothecium nuttallii* (Wilson) Schimper in Bruch & Schimper = *Homalothecium nuttallii*  
*Camptothecium nuttallii* var. *stoloniferum* Lesquereux = *Homalothecium nuttallii*  
*Camptothecium pinnatifidum* (Sullivant & Lesquereux) Sullivant = *Homalothecium pinnatifidum*  
*Campyliadelphus chrysophyllus* (Bridel) Hedenäs = *Campylium chrysophyllum*  
*Campyliadelphus polygamus* (Schimper in Bruch & Schimper) Kanda = *Campylium polygamum*  
*Campyliadelphus stellatus* (Hedwig) Kanda = *Campylium stellatum*  
*Campylium polygamum* var. *fluitans* Grout = *C. polygamum*  
*Campylopus atrovirens* De Notaris (misapplied for California). See *C. schmidii*  
*Campylopus aureus* Boscherelle & La Coste = *C. schmidii*  
*Catharinea callibryon* Ehrhart = *Atrichum undulatum*  
*Catharinea undulata* (Hedwig) Weber & Mohr = *Atrichum undulatum*  
*Ceratodon purpureus* var. *conicus* (Hampe) Husnot = *C. purpureus*  
*Ceratodon purpureus* var. *xanthopus* Sullivant = *C. purpureus*  
*Chenia leptophylla* (Müller Hal.) Zander = *Leptophascum leptophyllum*  
*Chenia rhizophylla* (Sakai) Zander = *Leptophascum leptophyllum*  
*Claopodium leuconeuron* Sullivant & Lesquereux = *C. whippleanum*  
*Claopodium whippleanum* var. *leuconeuron* (Sullivant & Lesquereux) Grout = *C. whippleanum*  
*Cratoneuron commutatum* (Bridel) Roth = *Palustriella commutata*  
*Crossidium desertorum* Holzinger & Bartram = *C. crassinerve*  
*Crossidium erosum* Holzinger & Bartram = *C. crassinerve*  
*Crossidium griseum* (Juratzka) Juratzka = *C. squamiferum*  
*Crossidium spatulaefolium* Holzinger & Bartram = *C. aberrans*  
*Crossidium squamiferum* var. *pottioideum* (De Notaris) Mönkemeyer = *C. squamiferum*  
*Desmatodon avenaceus* Kingman = *Tortula obtusifolia*  
*Desmatodon californicus* Lesquereux = *Tortula atrovirens*  
*Desmatodon convolutus* (Bridel) Grout = *Tortula atrovirens*  
*Desmatodon glacialis* Funck ex Bridel = *Tortula glacialis*  
*Desmatodon guepinii* Bruch & Schimper = *Tortula guepinii*  
*Desmatodon heinii* (Hedwig) Mitten = *Hennediella heinii*  
*Desmatodon hendersonii* (Renauld & Cardot) Grout = *Didymodon tophaceus*  
*Desmatodon latifolius* (Hedwig) Bridel = *Tortula euryphylla*  
*Desmatodon latifolius* var. *muticus* (Bridel) Bridel = *Tortula glacialis*  
*Desmatodon leucostoma* (R. Brown) Berggren = *Tortula leucostoma*  
*Desmatodon nervosus* Kingman = *Tortula atrovirens*  
*Desmatodon nervosus* var. *edentulus* Bruch & Schimper = *Tortula atrovirens*  
*Desmatodon obtusifolius* (Schwägrichen) Schimper = *Tortula obtusifolia*  
*Desmatodon plinthobius* Sullivant & Lesquereux = *Tortula plinthobia*  
*Desmatodon sprengelii* (Schwägrichen) Williams = *Plaubelia sprengelii*  
*Desmatodon stomatodontus* (Cardot) Williams = *Plaubelia sprengelii*  
*Desmatodon suberectus* (Hooker) Limpricht = *Tortula leucostoma*  
*Desmatodon systylius* Schimper = *Tortula systylia*  
*Dichelyna falcatum* (Hedwig) Myrin var. *uncinatum* (Mitten) Lawton = *D. uncinatum*  
*Dichelyna swartzii* Lesquereux = *Warnstorfia fluitans*  
*Dichodontium pellucidum* var. *fagimontanum* (Bridel) Kindberg = *D. pellucidum*  
*Dicranella rubra* Lindberg (misapplied for California). See *D. howei*  
*Dicranella varia* (Hedwig) Schimper (misapplied for California). See *D. howei*  
*Dicranoweisia crispula* (Hedwig) Milde (misapplied for California). See *D. contermina*  
*Dicranoweisia crispula* (Hedwig) Milde var. *contermina* (Renauld & Cardot) Grout = *D. contermina*  
*Dicranum heteromallum* Hedwig = *Dicranella heteromallum*  
*Dicranum palustre* Bachelot de la Pylaie = *Dicranella howei*  
*Dicranum strictum* Schleicher ex Mohr (misapplied for California). See *Orthodicranum tauricum*  
*Dicranum subulatum* Hedwig = *Dicranella subulata*  
*Dicranum tauricum* Sapehin = *Orthodicranum tauricum*  
*Dicranum varium* Hedwig (misapplied for California). See *Dicranella howei*  
*Dicranum virens* var. *compactum* Bruch & Schimper = *Oncophorus virens*  
*Dicranum virens* var. *serratum* Bruch & Schimper = *Oncophorus virens*  
*Didymodon acutus* (Bridel) Saito = *D. rigidulus*  
*Didymodon australasiae* var. *umbrosus* (Müller Hal.) Zander = *D. umbrosus*  
*Didymodon columbianus* Hermann & Lawton = *Bryoerythrophyllum columbianum*

- Didymodon mexicanus* Beschereille = *D. rigidulus*  
*Didymodon mexicanus* var. *subulatus* Thériot & Bartram = *D. rigidulus*  
*Didymodon recurvirostris* (Hedwig) Jennings = *Bryoerythrophyllum recurvirostrum*  
*Didymodon rigidulus* var. *icmadophila* (Schimper ex Müller Hal.) Zander = *D. rigidulus*  
*Didymodon rigidulus* var. *subulatus* (Thériot & Bartram) Zander = *D. rigidulus*  
*Didymodon rubellus* Bruch & Schimper = *Bryoerythrophyllum recurvirostrum*  
*Didymodon trifarius* (Hedwig) Bridel = *D. luridus*  
*Didymodon vinealis* var. *brachyphyllus* (Sullivant in Whipple) Zander = *D. brachyphyllus*  
*Didymodon vinealis* var. *flaccidus* (Bruch & Schimper) Zander = *D. insulanus*  
*Didymodon vinealis* var. *luridus* Hornschuch = *D. luridus*  
*Didymodon vinealis* var. *nicholsonii* (Culmann) Zander = *D. nicholsonii*  
*Didymodon vinealis* var. *rubiginosus* (Müller Hal.) Zander = *D. occidentalis*  
*Ditrichum cylindricus* (Hedwig) Grout = *Trichodon cylindricus*  
*Drepanocladus aduncus* var. *kniefii* (Bruch & Schimper) Mönkemeyer = *D. aduncus*  
*Drepanocladus aduncus* var. *polycarpus* (Blandow) Warnstorf forma *capillifolius* (Warnstorf) Mönkemeyer = *D. capillifolius*  
*Drepanocladus exannulatus* (Bruch & Schimper) Warnstorf = *Warnstorfia exannulata*  
*Drepanocladus fluitans* (Hedwig) Warnstorf = *Warnstorfia fluitans*  
*Drepanocladus polygamus* (Bruch & Schimper) Hedenäs = *Campyllum polygamum*  
*Drepanocladus sendtneri* (Schimper ex Müller Hal.) Warnstorf (in California) = *D. sordidus*  
*Drepanocladus uncinatus* (Hedwig) Warnstorf = *Sanionia uncinata*  
*Drepanocladus vernicosus* (Mitten) Warnstorf = *Hamatacaulis vernicosus*  
*Dryptodon patens* (Hedwig) Bridel = *Grimmia ramondii*  
*Encalypta vulgaris* var. *muticus* Bridel = *E. vulgaris*  
*Encalypta vulgaris* var. *rhaptocharpa* (Schwägrichen) Lawton = *E. rhaptocharpa*  
*Entosthodon muelenbergii* (Turner) Fife = *Funaria muelenbergii*  
*Entosthodon templetoni* Schwägrichen = *E. attenuatus*  
*Ephemerum serratum* var. *angustifolium* Bruch & Schimper = *E. serratum*  
*Ephemerum serratum* var. *minutissimum* (Lindberg) Grout = *E. serratum*  
*Eurhynchium brittoniae* Grout = *Kindbergia oregana*  
*Eurhynchium colpophyllum* Sullivant = *Scleropodium colpophyllum*  
*Eurhynchium diversifolium* Schimper in Bruch & Schimper = *E. pulchellum*  
*Eurhynchium oreganum* (Sullivant) Jaeger = *Kindbergia oregana*  
*Eurhynchium praelongum* (Hedwig) Bruch & Schimper = *Kindbergia praelonga*  
*Eurhynchium praelongum* var. *californicum* Grout = *Kindbergia praelonga*  
*Eurhynchium praelongum* var. *stokesii* (Turner) Dixon = *Kindbergia praelonga*  
*Eurhynchium pulchellum* var. *barnesii* (Renauld & Cardot) Crum, Steere, & Anderson = *E. pulchellum*  
*Eurhynchium riparioides* (Hedwig) P. Richards = *Platyhypnidium riparioides*  
*Eurhynchium rusciforme* (Bridel) Milde = *Platyhypnidium riparioides*  
*Eurhynchium serratum* (Hedwig) Kindberg = *Steerecleus serrulatus*  
*Eurhynchium stokesii* (Turner) Schimper in Bruch & Schimper = *Kindbergia praelonga*  
*Eurhynchium strigosum* (Weber & Mohr) Schimper = *E. pulchellum*  
*Eurhynchium substrigosum* Kindberg in Macoun & Kindberg = *E. pulchellum*  
*Eurhynchium substrigosum* var. *scabrisetum* Grout = *E. pulchellum*  
*Fabronia ciliaris* ssp. *gymnostoma* (Sullivant & Lesquereux) Grout = *F. ciliaris*  
*Fabronia gymnostoma* Sullivant & Lesquereux in Sullivant = *F. ciliaris*  
*Fabronia octoblepharis* Schwägrichen = *F. ciliaris*  
*Fissidens cristatus* Wilson ex Mitten = *F. dubius*  
*Fissidens julianus* (Montagne) Schimper = *F. fontanus*  
*Fissidens limbatus* Sullivant = *F. crispus*  
*Fissidens limbatus* var. *ensiformis* Grout = *F. bryoides*  
*Fissidens milo-bakeri* L. Koch = *F. curvatus*  
*Fissidens rufulus* Bruch & Schimper (misapplied for California). See *F. ventricosus*  
*Fontinalis antipyretica* var. *gigantea* Sullivant = *F. gigantea*  
*Fontinalis antipyretica* var. *mollis* (Müller Hal.) Welch in Grout = *F. mollis*  
*Fontinalis antipyretica* var. *oregonensis* Renauld & Cardot = *F. chrysophylla*  
*Fontinalis antipyretica* var. *patula* (Cardot) Welch in Grout = *F. antipyretica*  
*Fontinalis californica* Sullivant = *F. antipyretica*  
*Fontinalis duriae* Schimper = *F. hypnoides*  
*Fontinalis hypnoides* Hartman var. *duriae* (Schimper) Husnot = *F. duriae*  
*Fontinalis kindbergii* Renauld & Cardot = *F. howellii*  
*Fontinalis mercediana* Lesquereux = *F. neomexicana*  
*Fontinalis nitida* Lindberg & Arnell = *F. hypnoides*  
*Fontinalis patula* Cardot = *F. antipyretica*  
*Funaria bolanderi* (Lesquereux) Holzinger in Brotherus = *Entosthodon bolanderi*  
*Funaria calcarea* Wahlenberg = *F. muelenbergii*  
*Funaria californica* Sullivant & Lesquereux = *Entosthodon californicus*  
*Funaria convoluta* Hampe = *F. hygrometrica*  
*Funaria hibernica* (Hooker) Boulay = *F. muelenbergii*  
*Funaria hygrometrica* var. *convoluta* (Hampe) Grout = *F. hygrometrica*  
*Funaria hygrometrica* var. *utahensis* Grout = *F. hygrometrica*  
*Funaria mediterranea* Lindberg = *F. calcarea*  
*Funaria muelenbergii* var. *lineata* Grout = *F. muelenbergii*  
*Funaria muelenbergii* var. *patula* Bruch & Schimper = *F. muelenbergii*  
*Funaria rubriseta* Bartram = *Entosthodon rubrisetus*  
*Funaria tusconi* Bartram = *Entosthodon tusconi*  
*Grimmia ancistrodes* Durieu de Maisonneuve in Montagne = *G. trichophylla*  
*Grimmia affinis* Hornschuch = *G. longirostris*  
*Grimmia agassizii* (Sullivant & Lesquereux) Lesquereux & James = *Schistidium agassizii*  
*Grimmia alpestris* var. *manniae* Müller Hal. = *G. caespiticia*  
*Grimmia alpicola* Hedwig = *Schistidium agassizii*  
*Grimmia alpicola* var. *dupretii* (Thériot) Crum = *Schistidium dupretii*



- Grimmia alpicola* var. *rivularis* (Bridel) Brotherus = *Schistidium rivulare*
- Grimmia apocarpa* Hedwig (misapplied for California). See *Schistidium apocarpum* (Appendix II)
- Grimmia apocarpa* var. *ambigua* (Sullivant) Grout (misapplied for California). See *Schistidium apocarpum* (Appendix II)
- Grimmia apocarpa* var. *conferta* (Funck) Sprengel = *Schistidium confertum*
- Grimmia apocarpa* var. *gracilis* (Schleicher) Weber & Mohr (misapplied for California). See *Schistidium apocarpum* (Appendix II)
- Grimmia apocarpa* var. *pulvinata* (Hedwig) Grout = *Schistidium pulvinatum*
- Grimmia apocarpa* var. *tenerrima* Nees, Hornschuch, & Sturm (misapplied for California) See *Schistidium apocarpum* (Appendix II)
- Grimmia atricha* Müller Hal. & Kindberg = *Schistidium atrichum*
- Grimmia brevirostris* Williams = *G. hamulosa*
- Grimmia californica* Sullivant in Whipple = *G. lisae*
- Grimmia calyptrata* Hooker in Drummond = *Coscinodon calyptratus*
- Grimmia catalinensis* Bartam = *G. ovalis*
- Grimmia cinclidodonteia* Müller Hal. in Röhl = *Schistidium cinclidodonteum*
- Grimmia commutata* Hübener = *G. ovalis*
- Grimmia conferta* Funck = *Schistidium confertum*
- Grimmia curvata* (Bridel) DeSloover = *G. ramosii*
- Grimmia decipiens* auct. (misapplied for California). See *G. trichophylla*
- Grimmia dupretii* Thériot = *Schistidium dupretii*
- Grimmia flaccida* (De Notaris) Lindberg = *Schistidium flaccidum*
- Grimmia hartmanii* Schimper (misapplied for California). See *G. anomala*
- Grimmia hartmanii* var. *anomala* (Hampe) Mönkemeyer = *G. anomala*
- Grimmia heterophylla* Kindberg in Macoun = *Schistidium heterophyllum*
- Grimmia heterosticha* Howe = *Racomitrium heterostichum*
- Grimmia leucophaea* Greville = *G. laevigata*
- Grimmia maritima* Turner = *Schistidium maritimum*
- Grimmia muhlenbeckii* Schimper = *G. trichophylla*
- Grimmia nevii* Müller Hal. ex Mohr = *Racomitrium aciculare*
- Grimmia occidentalis* Lawton = *Schistidium occidentale*
- Grimmia pacifica* Lawton = *Schistidium cinclidodonteum*
- Grimmia raii* Austin = *Jaffuelobryum raii*
- Grimmia scouleri* Müller Hal. = *Scouleria aquatica*
- Grimmia sessitana* De Notaris (excluded for California). See *G. reflexidens*
- Grimmia tenera* Zetterstedt = *Schistidium tenerum*
- Grimmia tenerrima* Renauld & Cardot = *G. reflexidens*
- Grimmia trichophylla* var. *brachycarpa* De Notaris = *G. lisae*
- Grimmia trichophylla* var. *meridionalis* Müller Hal. = *G. trichophylla*
- Grimmia trichophylla* var. *muhlenbeckii* (Schimper) Husnot = *G. trichophylla*
- Grimmia watsoni* Lesquereux & James = *G. trichophylla*
- Grimmia wrightii* (Sullivant in Gray) Austin = *Jaffuelobryum wrightii*
- Gymnostomum aeruginosum* Small (misapplied for California). See *Gymnostomum calcareum*
- Gymnostomum calcareum* var. *perpusillum* Sullivant = *G. calcareum*
- Gymnostomum recurvirostre* Hedwig = *Hymenostylium recurvirostre*
- Harpidium exannulatum* (Schimper in Bruch & Schimper) C. E. O. Jensen = *Warnstorfia exannulata*
- Hedwigia albicans* Lindberg (misapplied for California). See *H. detonsa*, *H. stellata*
- Hedwigia albicans* var. *detonsa* Howe = *H. detonsa*
- Hedwigia ciliata* (Hedwig) P. Beauvois (misapplied for California). See *H. detonsa*, *H. stellata*
- Hedwigia ciliata* var. *detonsa* (Howe) Paris = *H. detonsa*
- Heterocladium aberrans* Renauld & Cardot = *H. procurrens*
- Heterocladium heteropteroides* Best = *H. macounii*
- Heterocladium heteropteroides* var. *filescens* Best = *H. macounii*
- Heterophyllum haldanianum* (Greville) Kindberg = *Callicladium haldanianum*
- Homalothecium aureum* (Spruce) Robinson (misapplied for California). See *H. pinnatifidum*
- Homalothecium megaptilum* (Sullivant) H. Robinson = *Trachybryum megaptilum*
- Homalothecium nitens* (Hedwig) H. Robinson = *Tomentypnum nitens*
- Homalothecium nuttallii* var. *hamatidens* Kindberg = *H. nuttallii*
- Homalothecium nuttallii* var. *tenue* Kindberg = *H. nuttallii*
- Husnotiella palmeri* Cardot = *Didymodon revolutus*
- Husnotiella pringlei* Cardot = *Didymodon tophaceus*
- Husnotiella revoluta* Cardot = *Didymodon revolutus*
- Husnotiella revoluta* var. *palmeri* (Cardot) Thériot = *Didymodon revolutus*
- Hydrogrimmia mollis* (Bruch & Schimper) Loeske = *Grimmia mollis*
- Hygroamblystegium irriguum* (Hooker & Wilson) Loeske = *H. tenax*
- Hygrohypnum dilatatum* (Wilson) Loeske = *H. duriusculum*
- Hygrohypnum palustre* Loeske = *H. luridum*
- Hygrohypnum smithii* var. *gouldarii* (Schimper) Wijk & Margadant = *H. cochlearifolium*
- Hymenostomum inoperculatum* Crum = *Weissia inoperculata*
- Hymenostomum tortile* (Schwägrichen) Bruch & Schimper = *Weissia condensa*
- Hyophila stanfordensis* (Steere) Smith & Whitehouse = *Hennediella stanfordensis*
- Hypnum aduncum* Hedwig = *Drepanocladus aduncus*
- Hypnum aggregatum* Mitten = *Isoetecium cristatum*
- Hypnum arcticum* Sommerfelt in Wahlenberg = *Hygrohypnum smithii*
- Hypnum arenarium* Lesquereux = *Homalothecium arenarium*
- Hypnum asperrimum* Mitten ex Müller Hal. = *Brachythecium asperrimum*
- Hypnum bestii* (Renauld & Bryhn) Renauld & Bryhn = *Hygrohypnum bestii*
- Hypnum bigelovii* Sullivant = *Porotrichum bigelovii*
- Hypnum brewerianum* Lesquereux = *Isoetecium cristatum*
- Hypnum caespitosum* Wilson = *Scleropodium caespitosum*
- Hypnum californicum* Lesquereux = *Scleropodium californicum*
- Hypnum collinum* Schleicher ex Müller Hal. = *Brachythecium collinum*
- Hypnum colpophyllum* Sullivant = *Scleropodium colpophyllum*
- Hypnum commutatum* Hedwig = *Palustriella commutata*

- Hypnum crispifolium* Hooker = *Claopodium crispifolium*  
*Hypnum denticulatum* Hedwig = *Plagiothecium denticulatum*  
*Hypnum exannulatum* var. *cochleae* Austin = *Warnstorfia exannulata*  
*Hypnum hillebrandi* Lesquereux = *Brachythecium collinum*  
*Hypnum illecebrum* Schwägrichen = *Scleropodium tourretii*  
*Hypnum lutescens* Hedwig = *Homalothecium fulgescens*  
*Hypnum myosuroides* Hedwig = *Isothecium myosuroides*  
*Hypnum nevadense* Lesquereux = *Homalothecium nevadense*  
*Hypnum nuttallii* Wilson = *Homalothecium nuttallii*  
*Hypnum ochraceum* Turner ex Wilson = *Hygrohypnum ochraceum*  
*Hypnum oregonum* Sullivant = *Kindbergia oregana*  
*Hypnum pinnatifidum* Sullivant = *Homalothecium pinnatifidum*  
*Hypnum populeum* Hedwig = *Brachythecium populeum*  
*Hypnum praelongum* Hedwig = *Kindbergia praelonga*  
*Hypnum pseudo-arcticum* Kindberg = *Hygrohypnum luridum*  
*Hypnum riparium* Hedwig = *Leptodictyum riparium*  
*Hypnum rusciforme* Hedwig = *Platyhypnidium riparioides*  
*Hypnum sendtneri* Müller Hal. (misapplied for California). See *Drepanocladus sordidus*  
*Hypnum serpens* Hedwig = *Amblystegium serpens*  
*Hypnum strigosum* Hedwig = *Eurhynchium pulchellum*  
*Hypnum uncinatum* Hedwig = *Sanionia uncinata*  
*Hypnum undulatum* Hedwig = *Buckiella undulata*  
*Hypnum vallum* Lesquereux = *Brachythecium asperrium*  
*Hypnum whippleanum* Sullivant = *Claopodium whippleanum*  
*Isopterygium borrierianum* (Müller Hal.) Lindberg = *Pseudotaxiphyllum elegans*  
*Isopterygium elegans* (Bridel) Lindberg = *Pseudotaxiphyllum elegans*  
*Isopterygium pulchellum* (Hedwig) Jaeger = *Isopterygiopsis pulchella*  
*Isopterygium seligeri* (Bridel) Dixon in C. Jensen = *Herzogiella seligeri*  
*Isothecium brewerianum* (Lesquereux) Kindberg in Macoun = *I. cristatum*  
*Isothecium howei* Kindberg = *I. cristatum*  
*Kindbergia brittoniae* (Grout) Ochyra = *K. oregana*  
*Kindbergia praelonga* var. *stokesii* (Turner) Ochyra = *K. praelonga*  
*Leersia rhapsocarpa* (Schwägrichen) Lindberg = *Encalypta rhapsocarpa*  
*Leersia trachymitria* (Ripart) Holzinger in Coville = *Encalypta rhapsocarpa*  
*Leptodictyum trichopodium* (Schultz) Warnstorf = *L. humile*  
*Leptodon circinnatus* Sullivant = *Dendroalsia abietina*  
*Leptotrichum schimperi* Lesquereux = *Ditrichum schimperi*  
*Lescuraea incurvata* var. *gigantea* Lawton = *L. incurvata*  
*Lescuraea incurvata* var. *tenuiretis* (Culmann) Lawton = *L. incurvata*  
*Lescuraea radicata* var. *compacta* (Best) Lawton = *L. radicata*  
*Lescuraea radicata* var. *denudata* (Kindberg) Lawton = *L. radicata*  
*Lescuraea radicata* var. *pallida* (Best) Lawton = *L. pallida*  
*Leskeella tectorum* (Bridel ex Hagen) = *Pseudoleskeella tectorum*  
*Leucolepis menziesii* (Hooker) Steere ex L. Koch = *L. acanthoneura*  
*Limnobia bestii* (Renauld & Bryhn) Holzinger = *Hygrohypnum bestii*  
*Limnobia palustre* Bruch & Schimper = *Hygrohypnum luridum*  
*Merceya latifolia* Kindberg = *Crumia latifolia*  
*Mielichhoferia mielichhoferiana* (Funck in Hooker) Loeske (misapplied for California). See *M. elongata*  
*Mildeella bryoides* Howe = *Tortula protobryoides*  
*Mniobryum albicans* (Wahlenberg) Limpricht = *Pohlia wahlenbergii*  
*Mniobryum longibracteatum* (Brotherus in Röhl) Brotherus = *Pohlia longibracteata*  
*Mniobryum wahlenbergii* (Weber & Mohr) Jennings = *Pohlia wahlenbergii*  
*Mnium affine* Blandow ex Funck (misapplied for California). See *Plagiomnium ellipticum*  
*Mnium affine* var. *rugicum* (Laurer) Bruch & Schimper = *P. rugicum*  
*Mnium cuspidatum* Hedwig = *Plagiomnium cuspidatum*  
*Mnium glabrescens* Kindberg = *Rhizomnium glabrescens*  
*Mnium insigne* Mitten = *Plagiomnium insigne*  
*Mnium longirostrum* Bridel = *Plagiomnium rostratum*  
*Mnium lycopodioides* Schwägrichen (in North America) = *Mnium ambiguum*  
*Mnium medium* Bruch & Schimper = *Plagiomnium medium*  
*Mnium menziesii* (Hooker) Müller Hal. = *Leucolepis acanthoneura*  
*Mnium nudum* Williams = *Rhizomnium nudum*  
*Mnium orthorrhynchum* auct. plur. = *M. thomsonii*  
*Mnium perssonii* T. Koponen = *Rhizomnium magnifolium*  
*Mnium pseudopunctatum* Bruch & Schimper = *Rhizomnium pseudopunctatum*  
*Mnium punctatum* Hedwig = *Rhizomnium punctatum*  
*Mnium punctatum* var. *elatum* Schimper = *Rhizomnium magnifolium*  
*Mnium rostratum* Schrader = *Plagiomnium rostratum*  
*Mnium rugicum* Laurer = *P. ellipticum*  
*Mnium venustum* Mitten = *Plagiomnium venustum*  
*Neckera menziesii* Hooker in Drummond = *Metaneckera menziesii*  
*Neckeradelphus menziesii* (Hooker) Steere = *Metaneckera menziesii*  
*Octodicerus fontanus* (Bachelot de la Pylaie) Lindberg = *Fissidens fontanus*  
*Octodicerus julianum* (A. P. de Candolle) Bridel = *Fissidens fontanus*  
*Oligotrichum lyellii* (Mitten) Lindberg = *Meiotrichum lyallii*  
*Oncophorus jenneri* (Schimper) Williams = *Cynodontium jenneri*  
*Orthotheciella varia* (Hedwig) Ochyra = *Amblystegium varium*  
*Orthotrichum coulteri* Lesquereux = *O. tenellum*  
*Orthotrichum cupulatum* var. *jamesianum* (Sullivant in Watson) Lawton = *O. pellucidum*  
*Orthotrichum cylindrocarpum* Lesquereux in Jaeger = *O. tenellum*  
*Orthotrichum epapillosum* Lawton & Hermann = *O. eurphyllum*  
*Orthotrichum jamesianum* Sullivant ex James in Watson = *O. pellucidum*  
*Orthotrichum kingianum* Lesquereux = *O. laevigatum*



- Orthotrichum laevigatum* var. *kingianum* (Lesquereux) Grout = *O. laevigatum*  
*Orthotrichum laevigatum* forma *macounii* (Austin) Lawton & Vitt = *O. laevigatum*  
*Orthotrichum lyellii* var. *howei* Renaud & Cardot = *O. lyellii*  
*Orthotrichum lyellii* var. *papillosum* (Hampe) Sullivant = *O. papillosum*  
*Orthotrichum microblepharum* Schimper = *O. pylaisii*  
*Orthotrichum roellii* Venturi in Röhl = *O. laevigatum*  
*Orthotrichum rupestre* var. *globosum* (Lesquereux) Grout = *O. rupestre*  
*Orthotrichum sturmii* Hoppe & Hornschuch = *O. rupestre*  
*Orthotrichum tenellum* var. *coulteri* Lesquereux = *O. tenellum*  
*Orthotrichum texanum* var. *globosum* Lesquereux = *O. texanum*  
*Palustrisella falcata* (Bridel) Hedenäs (for California) = *P. commutata*  
*Phascum cuspidatum* var. *americanum* Renaud & Cardot = *P. cuspidatum*  
*Phascum hyalinotrichum* Cardot & Thériot = *Stegonia hyalinotricha*  
*Philonotis fontana* var. *americana* (Dismier) Flowers = *P. americana*  
*Philonotis fontana* var. *caespitosa* (Juratzka) Schimper = *P. caespitosa*  
*Philonotis fontana* var. *pumila* Bridel = *P. tomentella*  
*Physcomitrella californica* Crum & Anderson = *P. readeri*  
*Physcomitrella patens* var. *californica* (Crum & Anderson) Tan = *P. readeri*  
*Physcomitrella patens* ssp. *readeri* (Müller Hal.) Tan = *P. readeri*  
*Physcomitrium megalocarpum* Kindberg = *P. pyriforme*  
*Physcomitrium megalocarpum* var. *californicum* (Britton) Grout = *P. californicum*  
*Physcomitrium turbinatum* (Michaux) Britton = *P. pyriforme*  
*Plagiommium rugicum* (Laurer) T. Koponen = *P. ellipticum*  
*Plagiothecium elegans* (Hooker) Sullivant = *Pseudotaxiphyllum elegans*  
*Plagiothecium pulchellum* (Hedwig) Bruch & Schimper = *Isopterygiopsis pulchella*  
*Plagiothecium roeseanum* Bruch & Schimper = *P. cavifolium*  
*Plagiothecium seligeri* (Bridel) Lindberg = *Herzogiella seligeri*  
*Plagiothecium striatellum* (Bridel) Lindberg = *Herzogiella striatella*  
*Plagiothecium sylvaticum* (Bridel) Bruch & Schimper = *P. denticulatum*  
*Plagiothecium sylvaticum* var. *roeseanum* (Bruch & Schimper) Lindberg = *P. cavifolium*  
*Plagiothecium undulatum* (Hedwig) Schimper in Bruch & Schimper = *Buckiella undulata*  
*Plaubelia sprengelii* var. *stomatodonta* (Cardot) Zander = *P. sprengelii*  
*Pleuridium alternifolium* var. *howei* Renaud & Cardot = *P. subulatum*  
*Pleuridium bakeri* Cardot & Thériot = *P. acuminatum*  
*Pleuridium bakeri* var. *elongatum* Cardot & Thériot = *P. acuminatum*  
*Pleuridium bolanderi* Müller Hal. ex Jaeger = *P. acuminatum*  
*Pleuridium californicum* Grout = *P. acuminatum*  
*Pleuridium stramineum* Lesquereux ex Austin = *P. acuminatum*  
*Pogonatum alpinum* (Hedwig) Röhl = *Polytrichastrum alpinum*  
*Pogonatum alpinum* var. *brevifolium* (R. Brown) Bridel = *Polytrichastrum alpinum*  
*Pogonatum laterale* Bridel = *P. contortum*  
*Pohlia acuminata* Hoppe & Horschuch = *P. elongata*  
*Pohlia cucullata* (Schwägrichen) Lindberg = *P. obtusifolia*  
*Pohlia elongata* Hedwig var. *greenii* (Bridel) Shaw = *P. elongata*  
*Pohlia filiformis* (Dickson) Andrews in Grout = *Anomobryum julaceum*  
*Pohlia gracilis* (Schleicher ex Bruch & Schimper) Lindberg = *P. filum*  
*Pohlia schleicheri* Crum = *P. filum*  
*Pohlia tozeri* (Greville) Delogne = *Epipterygium tozeri*  
*Polytrichadelphus lyallii* Mitten = *Meiotrichum lyallii*  
*Polytrichastrum alpinum* var. *septentrionale* (Swartz) G. Smith = *P. alpinum*  
*Polytrichastrum alpinum* var. *sylvaticum* (Menzies) G. Smith = *P. alpinum*  
*Polytrichastrum formosum* (Hedwig) G. Smith = *Polytrichum formosum*  
*Polytrichastrum longisetum* (Swartz ex Bridel) G. Smith = *Polytrichum longisetum*  
*Polytrichastrum lyallii* (Mitten) G. Smith = *Meiotrichum lyallii*  
*Polytrichum alpinum* Hedwig = *Polytrichastrum alpinum*  
*Polytrichum gracile* Small = *P. longisetum*  
*Polytrichum lyellii* (Mitten) Kindberg = *Meiotrichum lyallii*  
*Polytrichum norvegicum* Hedwig = *P. sexangulare*  
*Porothamnium bigelovii* (Sullivant) Fleischer in Brotherus = *Porotrichum bigelovii*  
*Porotrichum neckeroides* (Hooker) Williams = *Thamnobryum neckeroides*  
*Pottia arizonica* Warehouse in Grout = *Microbryum starkeanum*  
*Pottia arizonica* var. *mucronulata* Warehouse in Grout = *Microbryum starkeanum*  
*Pottia bryoides* (Dickson) Mitten = *Tortula protobryoides*  
*Pottia davalliana* (Small in Drake) C. Jensen = *Microbryum davallianum*  
*Pottia fosbergii* Bartram = *Microbryum starkeanum*  
*Pottia heimii* (Hedwig) Hampe = *Hennediella heimii*  
*Pottia latifolia* (Schwägrichen in Schultes) Müller Hal. = *Stegonia latifolia*  
*Pottia latifolia* var. *pilifera* (Bridel) Müller Hal. = *Stegonia pilifera*  
*Pottia minutula* (Schwägrichen) Fürnrhr ex Hampe = *Microbryum davallianum*  
*Pottia starkeana* (Hedwig) Müller Hal. = *Microbryum starkeanum*  
*Pottia subsessilis* Bridel = *Pterygoneurum subsessile*  
*Pottia texana* Warehouse in Grout = *Microbryum davallianum*  
*Pottia truncata* Hedwig = *Tortula truncata*  
*Pseudisothecium myosuroides* (Bridel) Grout = *Isothecium myosuroides*  
*Pseudisothecium stoloniferum* (Bridel) Grout = *Isothecium stoloniferum*  
*Pseudisothecium stoloniferum* var. *cardotii* (Kindberg) Grout = *Isothecium cardotii*  
*Pseudisothecium stoloniferum* var. *myurellum* (Kindberg) Grout = *Isothecium myosuroides*

- Pseudocrossidium revolutum* (Bridel in Schrader) Zander (misapplied for California). See *P. obtusulum*
- Pseudoleskea atrovirens* (Dickson) Bruch & Schimper = *Lescuraea patens*
- Pseudoleskea denudata* (Kindberg) Best var. *holzingeri* Best = *Lescuraea radicata*
- Pseudoleskea oligoclada* Kindberg = *Lescuraea incurvata*
- Pseudoleskea patens* (Lindberg) Kindberg = *Lescuraea patens*
- Pseudoleskea radicata* (Mitten) Lesquereux & James = *Lescuraea radicata*
- Pseudoleskea radicata* var. *pallida* Best = *Lescuraea pallida*
- Pseudoleskea rigescens* (Wilson) Lindberg = *Lescuraea stenophylla*
- Pterogonium gracile* var. *californicum* Renault & Cardot = *P. gracile*
- Pterogonium gracile* var. *duplicato-serratum* (Hampe) Lesquereux = *P. gracile*
- Pterygophyllum lucens* (Hedwig) Bridel = *Hookeria lucens*
- Racomitrium canescens* var. *epilosum* (H. Müller ex Milde) G. Jones in Grout = *R. ericoides*
- Racomitrium canescens* var. *ericoides* (Weber ex Bridel) Mönkemeyer = *R. ericoides*
- Racomitrium heterostichum* var. *affine* (Weber & Mohr) Lesquereux = *R. affine*
- Racomitrium heterostichum* var. *alopecurum* Hübener = *R. affine*
- Racomitrium heterostichum* var. *macounii* (Kindberg in Macoun) Jones = *R. macounii*
- Racomitrium heterostichum* var. *microcarpon* (Hedwig) Bridel = *R. microcarpon*
- Racomitrium heterostichum* var. *occidentale* Renault & Cardot = *R. occidentale*
- Racomitrium heterostichum* var. *ramulosum* (Lindberg) Grout = *R. microcarpon*
- Racomitrium heterostichum* var. *sudeticum* (Funck) Grout = *R. sudeticum*
- Racomitrium patens* (Hedwig) Hübener = *Grimmia ramondii*
- Rhizomnium perssonii* T. Koponen = *R. magnifolium*
- Rhynchostegiella compacta* (Müller Hal.) Loeske = *Conardia compacta*
- Rhynchostegium riparioides* (Hedwig) Cardot = *Platyhypnidium riparioides*
- Rhynchostegium rusciforme* Bruch & Schimper = *Platyhypnidium riparioides*
- Rhynchostegium serrulatum* (Hedwig) Jaeger = *Steerecleus serrulatus*
- Rhytidiadelphus triquetrum* var. *californicus* Renault & Cardot = *R. triquetrus*
- Roellia lucida* L. Koch = *R. roellii*
- Rosulabryum capillare* (Hedwig) Spence = *Bryum capillare*
- Schistidium alpicola* (Hedwig) Limpricht = *S. rivulare*
- Schistidium alpicola* var. *rivulare* (Bridel) Limpricht = *S. rivulare*
- Schistidium ambiguum* Sullivant (misapplied for California). See *S. apocarpum* (Appendix II)
- Scleropodium apocladum* (Mitten) Grout = *S. cespitans*
- Scleropodium caespitosum* (Wilson) Bruch & Schimper = *S. cespitans*
- Scleropodium caespitosum* var. *sublaeve* Renault & Cardot = *S. cespitans*
- Scleropodium cespitans* var. *sublaeve* (Renault & Cardot) Wijk & Margadant = *S. cespitans*
- Scleropodium illecebrum* Schimper in Bruch & Schimper = *S. touretii*
- Scleropodium touretii* var. *colpophyllum* (Sullivant) Lawton = *S. colpophyllum*
- Scopelophila latifolia* (Kindberg) Renault & Cardot = *Crumia latifolia*
- Sphaerangium muticum* (Hedwig) Schimper = *Acaulon rufescens*
- Sphagnum acutifolium* Ehrhart ex Schrader = *S. capillifolium*
- Sphagnum auriculatum* Schimper (in California) = *S. lescurii*
- Sphagnum capillifolium* var. *tenellum* (Schimper) Crum = *S. rubellum*
- Sphagnum cymbifolium* (Ehrhart) Hedwig = *S. palustre*
- Sphagnum plumulosum* Röhl = *S. subnitens*
- Sphagnum recurvum* var. *brevifolium* (Lindberg ex Braithwaite) Warnstorf = *S. fallax*
- Sphagnum recurvum* var. *tenu* Klinggräff = *S. angustifolium*
- Sphagnum rigidum* var. *compactum* Bridel = *S. compactum*
- Sphagnum subsecundum* var. *contortum* (Schultz) Hübener = *S. contortum*
- Sphagnum subsecundum* var. *rufescens* (Nees & Hornschuch) Hübener = *S. lescurii*
- Stableria gracilis* (Bruch & Schimper) Lindberg in Braithwaite = *Orthodontium gracile*
- Stableria gracilis* var. *californica* Howe = *Orthodontium gracile*
- Stokesiella oregana* (Sullivant) H. Robinson = *Kindbergia oregana*
- Stokesiella praelonga* (Hedwig) H. Robinson = *Kindbergia praelonga*
- Stroemia obtusifolia* (Bridel) Hagen = *Orthotrichum obtusifolium*
- Thamnium holzingeri* Renault & Cardot = *Bryolawtonia vancouveriensis*
- Thamnium leibergii* Britton = *Thamnobryum neckeroides*
- Thamnobryum leibergii* (Britton) Renault & Cardot = *T. neckeroides*
- Timmia megapolitana* Hedwig var. *bavarica* (Hessler) Bridel = *T. bavarica*
- Timmiella flexiset*a (Bruch) Lindberg = *T. crassinervis*
- Timmiella flexiset*a var. *vancouveriensis* (Brotherus) Grout = *T. crassinervis*
- Timmiella vancouveriensis* Brotherus in Röhl = *T. crassinervis*
- Tortella tortelloides* (S. W. Greene) Robinson (for California) = *T. alpicola*
- Tortula acaulon* (Hedwig) Zander = *Phascum cuspidatum*
- Tortula amplexa* (Lesquereux) Steere = *Syntrichia amplexa*
- Tortula angustata* Howe = *T. subulata*
- Tortula atherodes* Zander = *Phascum cuspidatum*
- Tortula aurea* Bartram = *Pseudocrossidium crinitum*
- Tortula bartramii* Steere in Grout = *Syntrichia bartramii*
- Tortula bistratosa* Flowers = *Syntrichia caninervis*
- Tortula bolanderi* (Lesquereux) Howe = *Syntrichia bolanderi*
- Tortula caninervis* (Mitten) Brotherus = *Syntrichia caninervis*
- Tortula desertorum* Brotherus = *Syntrichia caninervis*
- Tortula elata* (Müller Hal.) Durieu de Maisonnueve = *Didymodon vinealis*
- Tortula ericaefolia* Lindberg = *Aloina ambigua*
- Tortula intermedia* (Bridel) De Notaris = *Syntrichia ruralis*



*Tortula laevipila* (Bridel) Schwägrichen = *Syntrichia laevipila*  
*Tortula laevipila* var. *meridionalis* (Schimper) Wijk & Margadant = *Syntrichia laevipila* var. *meridionalis*  
*Tortula membranifolia* Hooker = *Crossidium squamiferum*  
*Tortula montana* Mitten = *Syntrichia ruralis*  
*Tortula norvegica* (Weber) Wahlenberg ex Lindberg = *Syntrichia norvegica*  
*Tortula obtusissima* (Müller Hal.) Mitten = *Syntrichia obtusissima*  
*Tortula pagorum* (Milde) De Notaris = *Syntrichia pagorum*  
*Tortula papillosissima* (Coppey) Brotherus = *Syntrichia papillosissima*  
*Tortula princeps* De Notaris = *Syntrichia princeps*  
*Tortula rhizophylla* (Sakai) Iwatsuki & Saito = *Leptophascum leptophyllum*  
*Tortula ruraliformis* (Bescherelle) Ingham (misapplied in California) = *Syntrichia ruralis*  
*Tortula ruralis* (Hedwig) Gärtner et al. = *Syntrichia ruralis*  
*Tortula ruralis* var. *crinita* De Notaris = *Syntrichia ruralis*  
*Tortula ruralis* var. *hirsuta* (Venturi) Paris = *Syntrichia papillosissima*  
*Tortula stanfordensis* Steere = *Hennediella stanfordensis*  
*Tortula subulata* var. *angustata* (Schimper) Limpricht = *T. subulata*  
*Tortula vectensis* Reese = *Leptophascum leptophyllum*  
*Tortula williamsii* Bartram = *Scopelophila cataractae*  
*Trichostomopsis australasiae* (Hooker & Greville) Robinson = *Didymodon australasiae*  
*Trichostomopsis brevifolia* Bartram = *Didymodon australasiae*  
*Trichostomopsis diaphanobasis* (Cardot) Grout = *Didymodon australasiae*  
*Trichostomopsis fayae* Grout = *Didymodon australasiae*  
*Trichostomopsis umbrosus* (Müller Hal.) Robinson = *Didymodon umbrosus*  
*Trichostomum anomalum* Bruch & Schimper = *Timmiella anomala*  
*Trichostomum cylindricum* (Bruch) Müller Hal. = *Oxystegus tenuirostris*  
*Trichostomum flavo-virens* var. *crassinerve* (Hampe) Lesquereux & James = *Timmiella crassinervis*  
*Trichostomum flexipes* Bruch & Schimper = *Timmiella crassinervis*  
*Trichostomum rigidulum* (Hedwig) Turner = *Didymodon rigidulum*  
*Trichostomum tenuirostre* (Hooker & Taylor) Lindberg = *Oxystegus tenuirostris*  
*Trichostomum tophaceum* Bridel = *Didymodon tophaceum*  
*Triquetrella papillata* (Hooker f. & Wilson) Brotherus (in California) = *T. californica*  
*Ulotia crispa* (Hedwig) Bridel (in California) = *Ulotia obtusiuscula*  
*Ulotia crispa* (Hedwig) Bridel var. *alaskana* (Cardot & Thériot) Grout = *Ulotia crispa*  
*Vesicularia amphibola* (Mitten) Brotherus = *V. vesicularis*  
*Webera albicans* Schimper = *Pohlia wahlenbergii*  
*Webera bolanderi* (Lesquereux) Lesquereux & James = *Pohlia bolanderi*  
*Webera commutata* Schimper = *Pohlia drummondii*  
*Webera cruda* (Hewig) Fürnrohr = *Pohlia cruda*  
*Webera nudicaulis* Lesquereux & James = *Pohlia drummondii*  
*Webera polymorpha* (Hoppe & Hornschuch) Schimper = *Pohlia elongata*  
*Webera tozeri* (Greville) Schimper = *Epipterygium tozeri*  
*Weissia cirrata* Hedwig = *Dicranoweisia cirrata*  
*Weissia euteiches* Zander = *W. condensa*  
*Weissia glauca* Bartram = *W. andersoniana*  
*Weissia tortilis* Sprengel = *W. condensa*  
*Weissia viridula* Hedwig = *W. controversa*  
*Zygodon californicus* Hampe ex Müller Hal. = *Amphidium californicum*  
*Zygodon lapponicus* (Hedwig) Bruch & Schimper = *Amphidium lapponicum*  
*Zygodon viridissimus* (Dickson) Bridel = *Z. rupestris*  
*Zygodon vulgaris* (Malta) Nyholm = *Zygodon rupestris*